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CREATIVE SOLUTIONS FOR ASSISTING STUDENTS EXPERIENCING DIFFICULTIES IN SIGHT SINGING CLASS

By

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ABSTRACT

CREATIVE SOLUTIONS FOR ASSISTING STUDENTS EXPERIENCING DIFFICULTIES IN SIGHT SINGING CLASS

By

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The purpose of the study is to highlight the importance of singing and sight singing in the development of basic musicianship skills. Although many theorists and music educators declare the importance of singing in the theory curriculum, they do not try to provide guidelines to address the issue and to find ways to improve the singing of non-vocalists. This study seeks to fill that gap. The first part addresses how sight singing and singing in general are related to the music theory curriculum, including a discussion of current trends in the teaching of sight singing. The second part of the study addresses the difficulties that students experience in a sight singing class.

Although the primary purpose of this study is not to speak in detail about the technique of singing, solutions and suggestions involving the actual act of singing will be offered. Principles of vocal production are included in order to help students and teachers learn how to make their voices become a tool. At the same time, suggestions are aimed at assisting students to achieve better in sight singing class and to develop strong musicianship skills for their musical studies and future careers.

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CHAPTER 1

INTRODUCTION

Singing has been an important tool in the music theory curriculum for many years. It helps develop musicianship skills and teach musical concepts. Despite widespread agreement about the importance of singing, aural skills teachers who are not themselves singers often have little idea how best to teach singing to their students. This study attempts to help teachers in aural skills classes understand how the voice functions and how to help their students sing more effectively. It discusses singing problems that the teacher may encounter, it provides warm-up activities that can be used in the aural skills classroom, and it applies vocal techniques to exercises found in a widely used sight singing text, in an attempt to bridge the gap between theory and vocal pedagogy.

The Role of Singing

Singing is the most accessible tool for making music or demonstrating musical concepts or nuances. Menuhin (1983) argues, "We should remember that numerous conductors sing as they take the orchestra through its paces. Toscanini can be heard doing so on various recordings. I myself find, conducting in rehearsal, that the surest way of conveying my intention to my colleagues is to sing it and when I teach it is totally natural impulse."[1] Conductors sing when they want to demonstrate musical ideas and to give directions during rehearsals; studio teachers use singing to communicate their musical articulations and thoughts with their students; music theorists make use of singing exercises to drill the students' internal hearing of chord qualities; some pianists

[1]Yehudi Menuhin, *Voice*, ed. Sir Keith Falkner. (London & Sydney: Macdonald & Company, 1983), vii.

feel the melodic flow better while they sing along with their playing. In short, singing is essential in many aspects of musical instruction.

In the music theory curriculum, singing is one of the most practical tools used by theory teachers. Many classes, whether focused on ear-training, basic harmony, counterpoint, analysis, twentieth-century composition techniques, or even music history, can make use of singing to help facilitate melodic dictation, demonstrate abstract concepts, bring out musical ideas, instill a practical understanding of musical style, and so on. For this reason, being able to sing accurately and comfortably is an advantage.

The Goal of Sight Singing

Riggins (1988) comments, "Although it is not the primary objective of sightsinging classes to develop vocal quality, the acquisition of a good voice for the purposes of demonstration is certainly a desirable by-product."[2] Rogers argues, "The best method of perfecting aural skills is still probably through singing."[3] Singing can help internalize musical ideas and sounds that strengthen musicians' ears. Similarly, singing music at sight can also help musicians to establish mental images of musical structure and concepts.

The goal of sight singing in the theory curriculum varies in different colleges, conservatories, and universities, depending on the philosophy of music teaching of the schools and how the music theory curriculum is structured. For example, the goal of sight singing in the core curriculum at Indiana University has not been to develop sight singing ability using solfege syllables, but to increase "musical skills in performing and

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[2]H. Lee Riggins and Howard Irving, "Creative Sightsinging," *Journal of Music Theory Pedagogy* 2, no. 1 (Spring 1988): 95-6.
[3]Michael R. Rogers, *Teaching Approaches in Music Theory* (Carbondale and Edwardsville: Southern Illinois University Press, 1984), 161.

listening and as a way for a student to demonstrate an understanding of musical structure."[4] At the New England Conservatory of Music, one of the primary goals of the sight singing program has been "to develop music reading to a high degree of fluency."[5]

Singing provides musicians with the experience to think and understand the connections of tones through singing. When a tone is produced, it is only a single sound with no contextual relationships. When a melody is sung, discrete sounds are linked together and related to each other. Tonal melodies are woven with musical concepts of certain musical periods. The ability to sing accurately helps a musician not only to develop keen ears for the intonation of pitches, but also to increase understanding of contextual and stylistic musical structures. Singing seems to be of intellectual as well as practical use. Rogers argues that sight singing is not just part of ear training; it is mind training, as well:

> The real goal of tonal sightsinging is not just accuracy; it is to hear the music in a particular way – a way that is musically nuanced, that is shaped and directed by goals, and a way that respects the encoded tensions and internal-movement proclivities of the specific environment. The job of sightsinging is context sensitivity and the enculturation of tonal bearings (i.e., knowing one's location and relationship to carefully selected reference pitches in the prevailing key at any given moment – to know, for example, where tonic is at every instant). In a larger sense, it is the whole network of attractions and associations- tugs, pulls, and aversions- that pitches have for one another that we should be teaching in sightsinging and not just how to find the next right note.[6]

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[4]Mary H. Wennerstrom, "The undergraduate core music curriculum at Indiana University," *Journal of Music Theory Pedagogy* 3 (1989): 155.
[5]Lyle Davidson and Larry Scripp, "Sightsinging at New England Conservatory of Music: A Developmental View of Sightsinging," *Journal of Music Theory Pedagogy* 2, no. 1 (Spring 1988): 68.
[6]Michael Rogers, "The Jersild Approach: A Sightsinging Method from Denmark," *College Music Symposium* 36 (1996): 149-50.

Benward believes that the ultimate goal of sight singing is "to look at a score of music (any music) and be able to hear it in your mind without having to sing and play it aloud," a process he calls "aural imagery."[7]

Sight Singing and Ear Training

The aural skills curriculum is traditionally divided into two broad categories, sight singing and ear training. In universities and conservatories in the United States, both are often taught in a single class, but singing and listening activities are often kept separate. The goal of ear training, however, is not just to teach students how to identify intervals, scales, and triads, or dictate melodies and harmonic progressions. Ear training and sight singing also help develop the ability to hear and understand music logically, so that musicianship skills are enhanced. White argues that ear training "can be viewed as the doorway to every aspect of the study of music theory. To be thoroughly mastered, every musical and theoretical concept must be comprehended from the perspective of sound itself."[8]

In melodic dictation, singing can help students gain a better idea of melodic structure. Rogers writes:

> After the first hearing (maybe not until after a second hearing) some sketching can begin. It is often helpful to sing back the melody silently (or with the whole class aloud) immediately after that first hearing so as to imprint it more firmly rather than rushing to write notes down... . Conventional dictation can easily fall into a rut. Variety can be promoted by using voices or instruments other than the piano.[9]

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[7]Bruce Benward, *Sightsinging Complete*, 2nd ed. (Dubuque, Iowa: Wm. C. Brown Company Publishers, 1973), ix.
[8]John D. White, *Guidelines for College Teaching of Music Theory*, (London: The Scarecrow Press, 2002), 27.
[9]Rogers, *Teaching Approaches in Music Theory*, 113-118.

Because it is often difficult to notate each note of a melody as it is played, accurate singing can also help students recall melodies during dictation, and help them detect errors in melodies and distinguish one melody from another similar melody. In both melodic dictation and melodic recognition activities, singing is virtually useless if not done accurately. Pembrook (1987) writes, "Obviously, when people did sing correctly there was an overwhelming tendency to recognize an ensuing melody as either same or different."[10] McHose (1948) comments, "One must realize that the average student's memory is not accurate. . . . The author urges the instructor not to be too hasty in requiring the student to place the notation until he can sing back the exercise on a neutral syllable. Accurate singing and successful dictation go hand in hand.

Singing can be used in many different ways to teach ear training. In melodic dictation, students can be asked to sing what they have written down—or sing a melody back from memory—rather than checking the answers on the board. In harmonic dictation, singing along with an outer voice can enhance the ability to notate it. Singing along with inner voices is an extra challenge that can help students hear horizontal voice leading in addition to vertical harmonies. For error detection, singing the correct notated version of a melody can help students discriminate between what appears in notation and what is actually heard.

Sight Singing in the Total Music Theory Curriculum

How do music theory instructors use singing in the written theory class? What more could be done with singing activities to enhance understanding of theory concepts?

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[10]Randall G. Pembrook, "The Effect of Vocalization on Melodic Memory Conservation," *Journal of Research in Music Education* 35, no. 3 (Fall 1987): 165.

Singing has obvious application in chorale harmonizations. Students should regularly sing chorale examples and their own harmonizations written in SATB style. Singing is also essential in species counterpoint study. Students gain a better understanding of the seventeenth century vocal style, and they can experience directly the melodic and intervallic structures that are characteristic of that style. For example, the prohibition of perfect fourths between the two voices in first species can be internalized better when students can recognize it through singing.

Analysis classes also can make use of singing. Singing the primary themes and motives of a work enhances the ability to analyze the work and to recognize the themes and motives aurally. After singing themes and motives several times, students will find it easier to organize these musical ideas in their minds. In reductive analysis, students who can sing the structural pitches or the reduction of the melodic line of the work will find it easier to derive a bigger picture of the work while reading and listening to the music in its original form. They can also see and hear the voice leading and the formal organization of the work better in this way. And in twentieth-century analysis, singing rows, row fragments, and their permutations will help students locate and identify them in the actual music.

The Relationship between Singing and Musicianship Skills

In the preface to his text *Sightsinging Complete*, Bruce Benward comments, "Sight singing is an established discipline the importance of which has been recognized by musicians for the past three hundred years."[11] De Zeeuw and Foltz argue that it is "a necessary tool for every musician, one which is beneficial not only as an analytical tool

[11]Bruce Benward, *Sightsinging Complete* (Dubuque, Iowa: Wm. C. Brown Company Publishers, 1973), vii.

but also as an important and convenient means for musical communication."[12] Despite wide agreement about the value of being able to sing at sight, the skill often remains undeveloped. Hindemith argues, "It is quite common to find excellent instrumentalists (not to mention composers) who have gone through six or more years of practical and theoretical studies without ever having opened their mouths for the most natural of all musical utterances!"[13]

Developing refined singing technique should not be a major focus of the music theory curriculum. However, given that sight singing is an integral part of the musicianship curriculum, students cannot derive any benefits from sight singing class if they are unable to sing. To some extent, the sight singing teacher may also need to be a singing teacher.

Although Karpinski declares the importance of singing in the theory curriculum, he does not provide guidelines for improving the singing of non-vocalists. This study seeks to fill that gap. The first part addresses how sight singing and singing in general are related to the music theory curriculum, including a discussion of current trends in the teaching of sight singing. The second part of the study addresses the difficulties that students experience in a sight singing class. Although the primary purpose of this study is not to speak in detail about the technique of singing, solutions and suggestions involving the actual act of singing will be offered. Principles of vocal production are included in order to help students and teachers learn how to make their voices "become a

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[12]de Zeeuw and Foltz, *Sight Singing and Related Skills* (Manchaca, Texas: Swift Publishing Company, 1975). Cited in Roger Foltz, "Sight Singing in Relation to the Total Theory Program," *Indiana Theory Review* 4 (Winter 1981): 4.

[13]Gary Karpinski, *Aural Skills Acquisition: The Development of Listening, Reading, and Performing Skills in College-Level Musicians*, 145.

tool, not an obstacle."[14] At the same time, suggestions are aimed at assisting students to achieve better in sight singing class and to develop strong musicianship skills for their musical studies and future careers.

Music Reading and Sight Singing

Most musicians need to read music fluently whether they are performers, conductors, composers, music theorists, music educators, musicologists, or music therapists. Music reading skills can be improved through sight singing, which is defined as the capacity to reproduce vocally a series of pitches from musical notation at first sight.[15] Put another way, the actual act of vocally reproducing a melody from a score allows musicians to "audiate" the music they have just sung, where *audiation* is defined by Gordon as the ability to assimilate and comprehend musical meaning, "mentally hearing" it through listening, performing, recalling, creating, reading, and composing.[16] "You must get to the point that you can hear music from the page."[17] Rogers calls this "the *understanding* ear and the hearing *mind*."[18] Sight singing melodies gives musicians a better "audiated understanding" of scalar formation, phrase structure, tonal structure, harmonic framework, structural and formal design, and voice leading.

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[14]Ibid.
[15]Harry Hammer, "An Experimental Study of the Use of the Tachistoscope in the Teaching of Melodic Sight Singing," *Journal of Research in Music Education* 11, no. 1 (Spring 1963): 44.
[16]Gordon argues that audiation can best be developed through singing experience. Sight singing is an act that allows musicians to internalize these musical meanings and concepts from musical notation. For details, see Edwin E. Gordon, *Rhythm: Contrasting the Implications of Audiation and Notation* (Chicago: GIA Publications, 2000), 9.
[17]Cited in Karpinski, *Aural Skills Acquisition: The Development of Listening, Reading, and Performing Skills in College-Level Musicians*, 3. "Du muß es so weit bringen, daß du eine Musik auf dem Papier verstehst!"
[18]Rogers, *Teaching Approaches in Music Theory*, 100.

Other Benefits of Sight Singing

Sight singing class can help improve more than simply the ability to read and perform vocal music better. Research studies have demonstrated that singing produces many positive effects for the development of musicianship skills. Most of these studies have been conducted on children, but the goal of improved musicianship applies equally well to college students. In a study on the effect of vocalization on the sense of pitch in beginning band-students, Elliot has determined that wind instrumentalists who participate in ensembles that require regular vocalization develop better aural acuity and sense of pitch than those wind players who do not participate in any of these ensembles.[19] Many wind players do not attain a keen sense of pitch, Elliot believes, because they play their instruments in a purely mechanical fashion, without the corresponding auditory association.

Pembrook cites a study by Ramsey (1983) that demonstrated a positive correlation between singing ability and memory of intervals, contour, and rhythm.[20] Such singing-enhanced melodic and rhythmic memory can improve musicians' melodic dictation skills and their ability to think about and hear music. Colwell argues:

> Authorities such as Mursell, Drake, and Borland view "earmindedness" (auditory imagery) and facility with the musical score as the primary goals of the music program. Furthermore, they view vocal instruction as it centers in the general music class as the best means of securing such auditory-visual skill. The reason for this view undoubtedly lies in the fact that in sight-singing the individual must rely solely upon his memory of pitch-intervals and connect these with the notes he sees in the score. Thus, "earmindedness" is the basic essential in sight-singing. On the other hand, the instrumentalist who sight-reads may only remember the proper fingering or hand position indicated by the notes and may never actually hear what he sees on the page until he play it. Therefore, it seems logical that

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[19]Charles A. Elliott, "Effect of Vocalization on the Sense of Pitch of Beginning Band Class Students," *Journal of Research in Music Education* 22, no. 2 (Summer 1974): 121.
[20]Randall G. Pembrook, "The Effect of Vocalization on Melodic Memory Conservation," *Journal of Research in Music Education* 35, no. 3 (Fall 1987): 156.

vocal experience should result in greater auditory-visual discrimination than does instrumental experience, unless that vocal experience has been entirely rote leaning with no relation to the musical score."[21]

In addition to the development of "earmindedness" and auditory-visual discrimination, vocal experience plays an important part in the development of other musical skills. By examining the different levels of pitch development in children's singing Davidson and Scripp (1985) demonstrate how children can develop the ability to derive the tonal structures of melodies.[22] The authors discovered that children's tonal knowledge is acquired by the approximation of melodic contours. They suggest five specific levels of pitch development in young children's singing, expressed through what they call "contour schemes." They argue that the use of sight singing can help students to integrate these contour schemes into increasingly larger tonal structures.

Current Trends in the Teaching of Sight Singing in the Music Theory Curriculum in the United States

In most music theory curricula in the United States, instructors give little emphasis to teaching singing skills, instead favoring other areas, such as writing skills and analysis.[23] Many highly respected schools allot limited time for sight singing. Students enroll in only one or two credit hours of aural skills classes (which typically include both singing and listening activities) each semester, whereas at least three to four credit hours are usually required for the study of basic harmony each semester.[24]

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[21]Richard Colwell, "An Investigation of Musical Achievement Among Vocal Students, Vocal-Instrumental Students, and Instrumental Students," *Journal of Research in Music Education* 11, no. 2 (Fall, 1963): 123.
[22]Lyle Davidson and Larry Scripp, "Sightsinging at New England Conservatory of Music: A Developmental View of Sightsinging," *Journal of Music Theory Pedagogy* 2, no. 1 (Spring 1988): 13.
[23]For example, in the core curriculum at Indiana University, 15 credits are devoted to the study of Written Theory/Literature courses, while only 4 credits are given to music skills courses, such as ear training, sight reading, keyboard. For detail, see Mary Wennerstrom, "The undergraduate core music curriculum at Indiana University," *Journal of Music Theory Pedagogy* 3 (1989): 163, 168-69.
[24]See Damschroder's discussion in "Flexibility in theTheory Classroom: Strategies for the Management of Diversity," *Journal of Music Theory Pedagogy* 3, no. 2 (Fall 1989): 185 & 186.

Concentrating more on the teaching and learning of written music theory by de-emphasizing the attention given to aural skills can signal that singing skills are less important than conceptual and written skills.

In most freshman theory classes, a broad spectrum of musical knowledge can be found. There are usually a few students who obviously have had some prior training in sight singing, ear training, and written music theory, while the majority of students have had little formal musical training other than study of an instrument or voice.[25] Wennerstrom comments, "Students are particularly ill prepared in aural skills and sightsinging." Instructors must choose whether to gear their teaching to the lower level of students or the higher ones, all of whom are typically squeezed into the same class.

Sight singing is usually taught in four semesters in most colleges, universities, and conservatories in the United States, which is seldom long enough for students to achieve mastery.[26] Especially in the case of smaller colleges, there is a tendency to have only one teacher teach both written theory and aural skills, usually someone who does not specialize in teaching singing. Teachers who are uncomfortable singing may de-emphasize sight singing and concentrate more on listening activities. Such non-vocalists may not demonstrate singing in front of the class; as a result, students have neither a good model to learn how to sight sing, nor a good classroom environment in which to practice their singing. In large classes, a high student-to-teacher ratio leaves teachers unable to give enough individual attention to those who need help. Finally, sight singing is often

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[25]Karpinski, *Aural Skills Acquisition: The Development of Listening, Reading, and Performing Skills in College-Level Musicians*, 7.

[26] Typical institutional degree requirements (75% of those reporting) included four semesters of ear training. See Randall G. Pembrook and H. Lee Riggins, "Send Help!": Aural Skills Instruction in U.S. Colleges and Universities," *Journal of Music Theory* 4, no. 2 (Fall 1990): 233. See also the footnote 23 on p. 10.

taught independently of other theory courses.[27] Instructors who teach written music theory may not integrate sight singing into their teaching.

Damschroder argues, however, that singing should be applied to all aspects of musicianship learning and be thoroughly integrated into all theory courses. He comments, "Sightsinging is a refreshingly straightforward and wonderfully useful pedagogical device."[28] Teachers should encourage their students to explore the usefulness and the fun of singing. However, it is not always easy to persuade students to appreciate fully the benefits of singing given the problems they often experience in sight singing class. These problems, which will be addressed in Chapter 2, include lack of singing experience and knowledge of proper vocal production, inability to match pitch, inability to hear musical relationships, difficulties establishing pitch collection and tonal center, and lack of confidence singing.

Students who have problems sight singing may, in fact, have trouble with singing, in general. Theorists understandably focus on developing conceptual understanding in their students, but it sometimes comes at the expense of developing singing skills.

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[27] Pembrook and Riggins reported that about 60% of schools have separate classes for aural skills instruction and 4 % of those schools were further subdivided into separate classes for sight singing and ear training. See Pembrook and Riggins, "Send Help!": Aural Skills Instruction in U.S. Colleges and Universities," 233 & 239.

[28] David Damschroder, "Flexibility in theTheory Classroom: Strategies for the Management of Diversity," *Journal of Music Theory Pedagogy* 3, no. 2 (Fall 1989):186.

CHAPTER 2

PROBLEMS ENCOUNTERED BY COLLEGE MUSIC STUDENTS IN SIGHT SINGING CLASS

Many students have difficulties in sight singing class. Some difficulties are trivial, such as unprepared assigned melodies, daydreaming, and boredom. Other problems are more serious: some students cannot "carry a tune" or even match pitch, some sing out of tune, and some cannot associate pitches with notation.[29] This chapter deals with the non-trivial singing problems encountered in aural skills classes. The first section is devoted to a brief discussion of the physiology of singing and the vocal mechanism, and common problems related to these issues. The second section of this chapter focuses on the audiation and self-motivation problems.

The Act of Singing and The Vocal Mechanism

Understanding the relation of the vocal instrument to the physical processes that govern it is crucial to good singing, even in an aural skills or sight singing class filled with non-vocal majors. Most students and teachers in sight singing class have little understanding of what is going on with their vocal instruments. Although this section is not aimed at giving a comprehensive description of the vocal mechanism, some general information about the act of singing can help students and teachers better understand their singing voice.

The act of singing involves four physical processes: respiration, phonation, resonation, and articulation. These four processes are described below:

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[29] In this chapter, I will only focus on singing problems. Problems in other ear training activities will not be discussed.

Respiration

When one inhales to sing, the diaphragm lowers. The lungs stretch downwards by the descending movement of the diaphragm, which increases the size of the lungs to allow air to enter the body. When one exhales, the diaphragm relaxes, the lungs return to their original size and shape, and the abdominal organs and abdominal wall also return to their original shape and location. Breathing for singing involves basically four stages: (1) inhalation, (2) suspension, (3) exhalation (phonation), and (4) recovery. Unlike ordinary breathing, all four stages require conscious control.

(1) Inhalation

In the inhalation stage of breathing for singing, singers are trained to inhale quickly and quietly through the nose. When inhaling, the chest is comfortably high, the lower abdomen is not tightened, and the upper abdomen is free to move. Each inhalation creates expansion all around the middle part of the body.

(2) Suspension

Suspension takes place when the breath is suspended momentarily after inhalation before the tonal attack occurs.

(3) Exhalation (phonation)

In singing, the release of breath should be slow. Singers must constantly hold back their breath to control the release of air. The diaphragm should gradually release its tension, and the expanded chest and abdomen should gradually contract. Nevertheless, one should still feel the expansion till the end of the phrase.

(4) Recovery

This stage of breathing starts at the end of each breath where a short break takes place for all the muscles to relax. At this point of relaxation, the muscles associated with breathing will have the opportunity to rest and recover for each succeeding breath.

Phonation

Phonation is the process of producing vocal sound by vibrating the vocal cords during exhalation. According to McKinney, the production of a sung musical tone can be divided into three phases: (1) attack, (2) sustention, and (3) release. [30]

(1) The attack phase

The attack phase is crucial to the accuracy of producing a musical tone. To attack accurately, the singer must first audiate the pitch; sliding down or up to the desired note is not acceptable. The jaw should be relaxed, breaths should be low, deep, and sustained to the end of the phrase. Although phonation actually starts at the larynx, one should feel that it seems to take place somewhere in the head. This kind of imagery can help singers reduce neck tension that may occur around the larynx. Singers often say, "A good singer is a head and a chest with nothing in between."[31]

(2) The sustention phase

This is the actual sound-production phase, when notes and phrases are sustained until their release. Good posture and proper breathing are necessary in maintaining the energy for singing a long phrase. The breath should "stay inside the body" with the feeling of expansion around the middle of the body lasting until the end of the phrase or

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[30] James C. Mckinney, *The Diagnosis & Correction of Vocal Faults* (Nashville, Tennessee: Broadman Press, 1982), 81.
[31] Ibid., 82.

the note. Unnecessary movements of the tongue, lips, or jaw should be avoided.

(3) The release phase

The release phase starts when the tone is about to end, and lasts until the note fades out. Without proper support, the final note will sound out of tune. Often in a class of inexperienced singers, loss of key occurs at the end of phrases due to the lack of support in the release phase.

Resonation

Several vocal resonators work with the primary vibrator (the vocal cords) to determine the quality of a sound. In resonation, the vibrations from the vocal cords cause the other resonators to vibrate sympathetically. The four resonators are (1) the larynx, (2) the pharynx (the throat), (3) the mouth, and (4) the nose.

(1) The larynx

The larynx ('voice box") contains the vocal cords; it is usually considered of secondary importance for the production of vocal sound because it can produce only very high frequencies.

(2) The pharynx (the throat)

The pharynx is considered the most important resonator of all. It is capable of resonating at the frequencies of the lower partials of the vocal tone. The quality of the tone produced by the pharynx is warm, round, rich, and mellow.

(3) The mouth

The mouth is the second most important resonator. It includes the jaw, tongue, soft palate, and lips, all of which are easily adjustable. The mouth articulates words, especially the consonants into understandable units. It joins with the pharynx in the

formation of vowel sounds. Because different vocal syllables cause the pharynx to resonate in different ways, singers often focus on the shape of each syllable. Likewise, solmization syllables have their characteristic sounds and features. Students usually find it hard to articulate certain syllable, such as "sol," which requires them to exaggerate the movement of the mouth in order to articulate the final "L." Such movement will often interrupt the production of the sound.

(4) The nose

The nose has relatively limited use in terms of making sounds. Its primary duty is to produce the three nasal consonants [m], [n], and [ŋ] of English language and some nasal vowel sounds in the other languages, such as [ã], [õ] in French.

Adjustments of the resonators

Other than the nose, all the resonators discussed above are adjustable. The larynx should be kept low, so that the pharynx (throat) is lengthened. The throat should be opened (as if yawning). The soft palate (also called the velum, is located between the posterior edge of the hard palate – upper-middle part of the oral cavity – and the uvula) should be gently lifted. All these adjustments increase the size of the resonating chamber and relax the resonators to allow freer vibration.

Articulation

Articulation mainly deals with the adjustments and movements of the lips, the lower jaw, the tongue, and the mouth in shaping and producing the sounds of the consonants and vowels. All these articulators must be relaxed at all times so that they can shape different sounds without creating excessive tension.

Registration

Registers result from different vibratory patterns that are produced by the vocal cords and the other resonators. Different vibratory patterns create different ranges of pitches and characteristic qualities. It is generally agreed that all voices have three registers, the "head," the "middle" (also called "mixed" or "modal voice"), and the "chest." The "head register" is usually called the "head voice." The term describes the resonance phenomenon or the vibratory sensation that is being realized in the head. The term "middle" or "modal voice" refers to "the natural disposition or manner of action of the vocal cords."[32] It is the middle area that lies between the lowest and the highest range of the singing voice. The "chest register" is usually called the "chest voice." It describes the vibratory sensation that takes place in the chest. It designates the comfortable speaking range.

Three other registers exist in human voices, although no person can produce all of them. They are the "vocal fry"[33] (the lowest register in both male and female voices), "falsetto" (the imitation of female vocal quality by using head register in the male singing voice), and "whistle" (the highest register in the female voice).[34]

Generally, male singers use chest voice, and female singers use head voice. Male singers usually sing and speak in the same register, while female singers do not. This is a significant difference between the two, which has ramifications for the sight-singing class. Basses sing mostly in the chest voice, tenors often use head register, and baritones use both registers equally often.[35]

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[32] Mckinney, *The Diagnosis & Correction of Vocal Faults*, 98.
[33] Ibid., 98-100.
[34] Ibid., 108-9.
[35] Richard Miller, *The Structure of Singing* (New York: Schirmer Books, 1996), 117.

Voice classification and the criteria determining voice classification

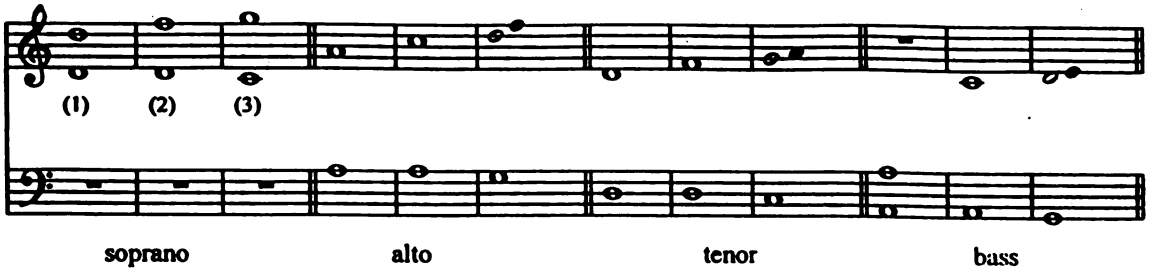
All singers in a sight singing class should know their vocal classification (soprano, alto, tenor, and bass). There are several reasons for this: (1) They should know which part to sing when performing four-part chorales. (2) They should know where their chest voice ends and their head voice begins, so that they can adjust their singing accordingly. (3) They should know what notes lie in their vocal range. Singing in the wrong classification is frustrating and harmful to the voice. Sight singing teachers should help their students figure out their voice classifications as early as possible in their training. In this way, students can fully benefit from the class.

In a sight singing class, only the four major voice categories (soprano, alto, tenor, bass) are necessary or practical. Several criteria can be used in determining voice classification. The most obvious classification is by range. Although there is no absolute vocal range for each voice category, a general guideline of range for the four voice types is given here for quick reference.

Trained singers should have at least a two-octave range. In a sight singing class, however, a teacher may rarely find students who can comfortably sing two octaves. Inexperienced students in sight singing class can be expected to have at least a one octave range; a range of a twelfth should be their goal. Thus, the comfortable singing range for soprano should be C4 to G5; for alto it is A3 to E5; for tenor it is C3 to G4; and for bass it is G2 to D4. If the students have rarely sung before, they should have at least a tenth, starting from the note stated above for that classification. With proper vocal training, the vocal ranges of the students can be extended. Generally, the "standard" range for soprano is C4 to G5; alto is G3 to D5/F5; tenor is C3 to G4/A5; and bass is G2 to D4/E4.

Figure 1 shows (1) the minimum range for all vocal classifications in sight singing class; (2) the ideal range of a twelfth that all students should acquire; (3) the "standard" range of each voice category.

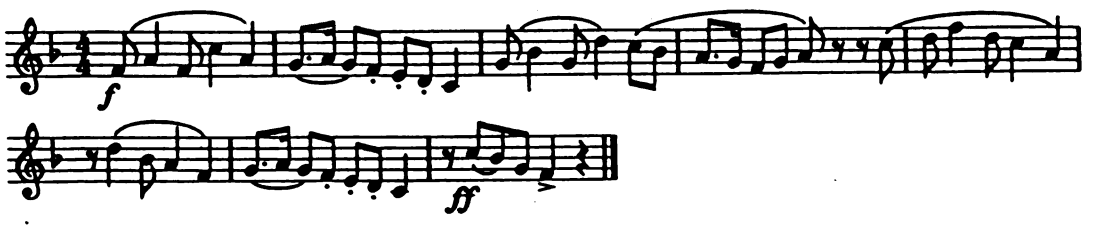
Figure 1. Chart of vocal range for the four voice categories



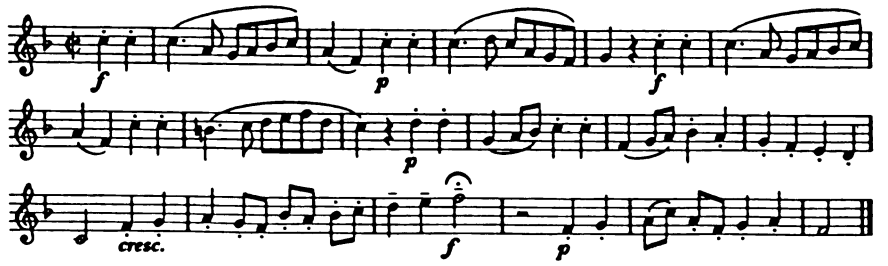
In order to determine voice classification more accurately, sight singing teachers should also try to find the students' vocal tessitura, which is the part of the range that is most commonly used. It differs from the absolute range of a voice type. Two students who share the same vocal range do not necessarily have the same tessitura. In order to recognize the tessitura of a student, teachers can ask the students to sing two different melodies that have the same general range and pitches that lie predominantly high or low within that range (i.e. different tessituras). Examples 2.1-2.12 show several pairs of melodies with basically share the same range but of different tessituras.

Group 1

Example 2.1. Sol Berkowitz, Gabriel Fontrier, and Leo Kraft, *A New Approach to Sight Singing*, 4th ed. (New York: W. W. Norton & Company, 1997): Ex. 182, p. 36.

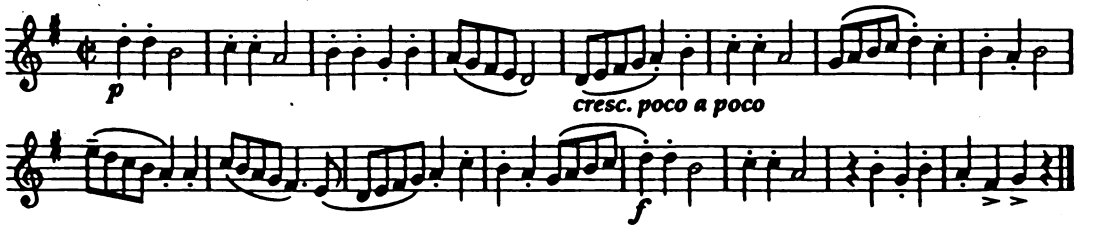


Example 2.2. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 201, p. 40. (higher tess.)

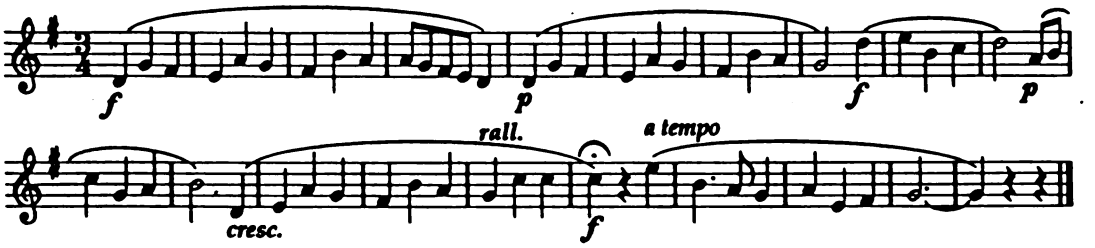


Group 2

Example 2.3. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 163, p. 32. (higher tess.)

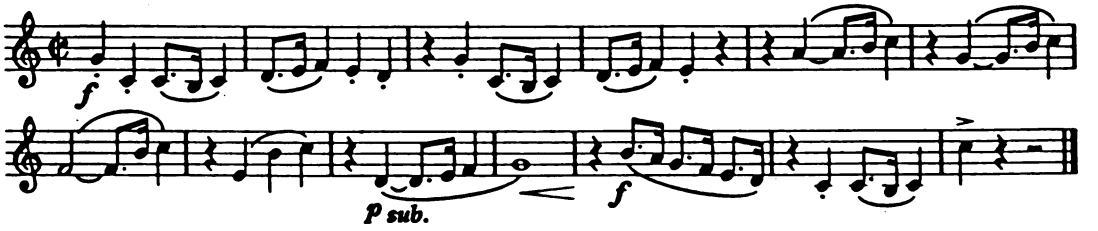


Example 2.4. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 164, p. 32.

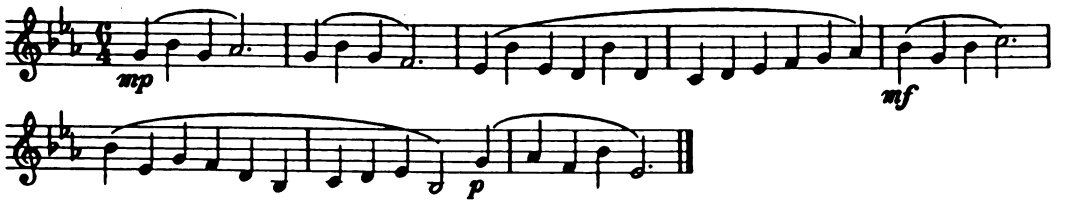


Group 3

Example 2.5. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 202, p. 40.

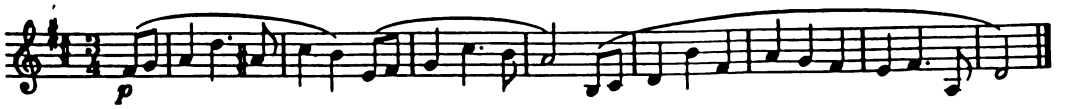


Example 2.6. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 157, p. 30. (higher tess.)

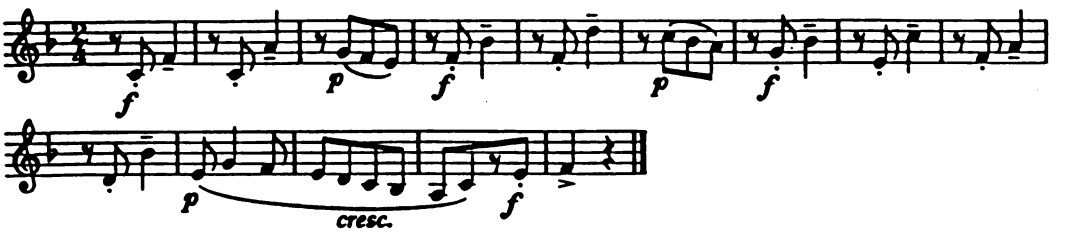


Group 4

Example 2.7. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 246, p. 51.



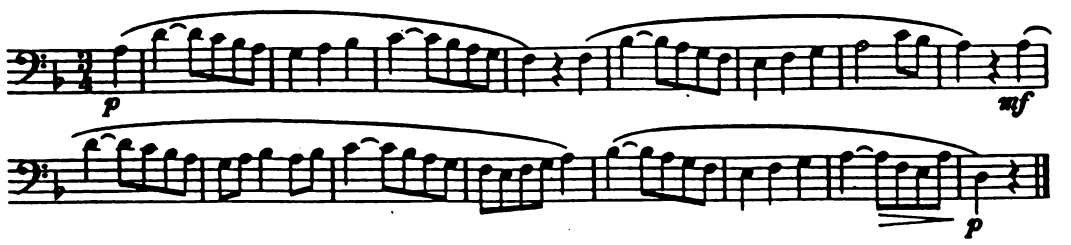
Example 2.8. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 260, p. 55. (higher)



Group 5

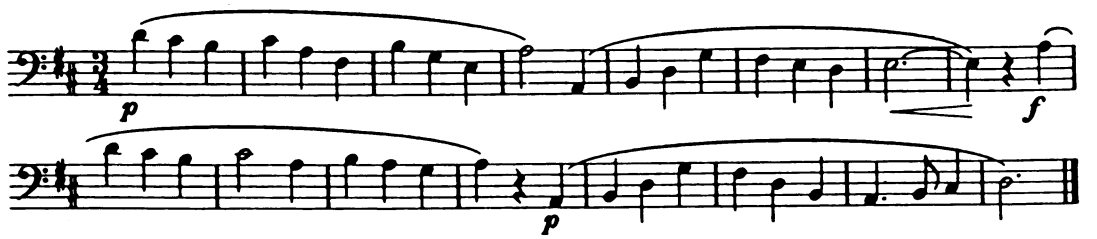
Example 2.9. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 82, p. 17. (higher)

Example 2.10. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 167, p. 33.

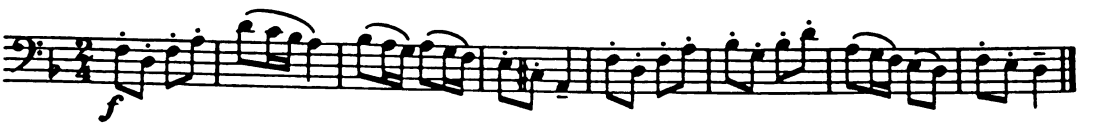


Group 6

Example 2.11. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 165, p. 32.



Example 2.12. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 121, p. 23. (higher)



Some students can sing both of the melodies in each group comfortably. Others, however, will find the melody with the higher tessitura to be problematic. It is because the higher ones are usually more demanding as they lie so high in the upper register. Students who are uncomfortable singing the higher one are mostly likely to be altos or basses.

The third criterion is to find out the points of transition between chest voice and head voice. (The technical term for this is the "break," or "passaggio"). Different vocal registers have noticeably different qualities. Most singers have basically three registers; singing from one register to another usually creates a change of quality and requires a change in vocal technique.

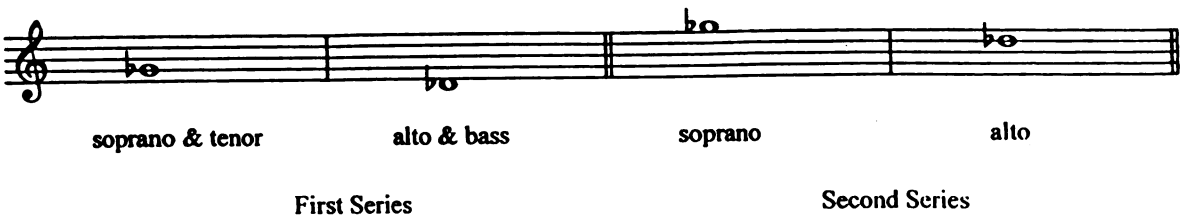
In both male and female voices, bridging from one register to another can be a problem. The high female voice cannot easily produce the transition sound from the middle voice into the head voice because the two registers/voices have significantly

different qualities. Blending the two qualities of sounds can be difficult. The low male voice cannot pass through the chest voice easily for singing in the upper register since he sings largely in the chest and is not accustomed to singing with his head. The points of transition for male and female voices are different. Singers must examine the position of the resonators and articulators during the transition, so that they can gradually handle the problem of bridging.

There is no agreement on what pitch is the point of transition between each register. In general, higher voices (soprano and tenor) usually have higher break notes, while the lower voices (alto and bass) usually have lower break notes. Because of the inconsistency regarding the point of transition in each student, teachers may have difficulty recognizing what registral areas students experience when they sing a melody. This is obviously most difficult with a large group of inexperienced singers. In order to help the students camouflage or smooth out the breaks and to identify their voice classifications more accurately, teachers should spend time with their students individually, if possible.

Some general ideas of the break notes of different voice categories are given here with the aim of helping teachers determine their students' transition points. According to McKinney, female voices exhibit two series of breaks approximately an octave away from each other, while male voices only exhibit one. The break note for the bass is D-flat4; tenor is G-flat4; alto is D-flat4 and D-flat5; and soprano is G-flat 4 and G-flat5[36] (see Figure 2). Teachers can pick any melodies that have a range of more than an octave from any sight singing textbook to test their students. Any obvious indications of quality change in the voice may indicate possible points of transition.

Figure 2. Chart of transition tone(s) for the four voice categories



One prominent physical problem in all voice categories when moving from a lower register to a higher one is the involuntary raising of the chin and the larynx. As discussed in the previous section, inexperienced singers seem to associate high notes with a high chin and tense throat. Suggestions for helping students to stabilize their throats are given in Chapter 3.

Common Singing Problems

Problems related to respiration

Correct singing requires correct breathing. Breathing problems are almost always associated with poor posture. Students slouch, push their shoulders forward, lower or raise their chins too high, collapse their chests and spines, or protrude their abdomen. Students with little experience in singing tend to be nervous when they sing in front of a big class or for the instructor. Their muscles tense, their shoulders rise up, and their chests are too high. Such improper singing postures will not only cause improper breathing for singing, but it will also cause tension in the vocal mechanism.

Some students may have a false conception that breathing for singing is just like breathing for living, which involves only two stages, inhalation and exhalation. Breathing for singing is a more complicated process. Aural skills teachers usually do not take time to teach their students how to breathe. As a result, students breathe whenever

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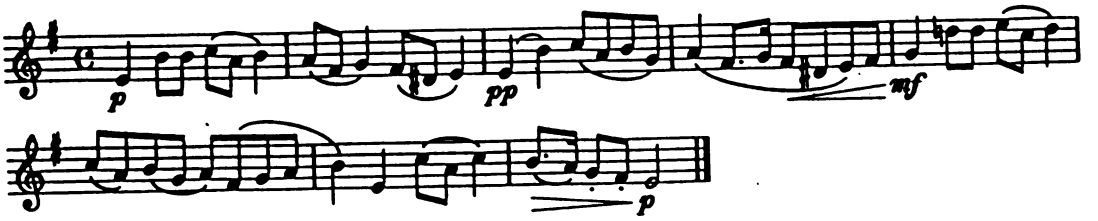
[36]Mckinney, *The Diagnosis & Correction of Vocal Faults*, 117.

they want, often in the wrong place in the music. For example, in Example 2.13, students may have difficulty finding the correct place to breath. In measure 5, experienced singers will consider breathing before the leap to D, even though this is after the first note of the phrase. However, inexperienced singers may want to take a breath after the D, perhaps because they have just accomplished singing the wide leap and will need another new breath. Or perhaps, the phrase marking confuses them.

Example 2.13. Berkowitz, *A New Approach to Sight Singing*: Ex. 228, p. 47.



In general, most inexperienced singers tend to take breaths that are too shallow. The technical term for this kind of breathing is called "upper-chest" or "clavicular" breathing. Shallow breathing usually causes a "breathy" tone as air flows in and out with little conscious control or support. It also leads to running out of air before the end of phrases. Most new singers have no concept of deep breathing because they have never experienced it. They have never felt the expansion of the sides, the back, and the abdomen. The aural skills teacher should introduce deep breathing and encourage them to practice it when they sing. A deep, supported breath can also help students singing high notes, which require more energy and support than lower notes. Without adequate breath support, students are likely to try to sing form their throats, creating tension and unpleasant tone quality. Finally, noisy inhalation is a sign of improper breathing.

Students either are not taking enough time to breathe, or the tension in their shoulders and back prevents them from breathing properly. Breathing for singing should be noiseless.

Problems related to phonation

Phonatory problems are usually associated with the vocal cords and improper breathing. The primary cause of the problem is due to the incomplete closure of the vocal cords. A breathy sound can signal improper closure of the vocal cords. For proper phonation, the vocal cords are brought close enough together that air cannot leak out quickly.

Singers must often work hard to strengthen their vocal cords to keep the breath from running out. The teacher can help students strengthen their vocal cords by asking them to sing louder, or simply use more energy while singing. In this way, the vocal cords may gradually come together more, leading to more efficient breath control.

Some students work too hard. They push so hard on their abdominal muscles that the larynx feels too much pressure, causing tension in the vocal cords. The sound produced from tight vocal cords will be strained, straight, and hard. Such vocal abuse can lead to severe vocal problems. Persistent hoarseness can be the first symptom of such problems.

There are some other causes that may lead to phonatory and vocal problems. Singing in the wrong voice classification (for example, tenor instead of bass); screaming or yelling too much; consistently forcing the voice to sing or speak too loudly; smoking or drinking too much; allergies, and many other possibilities. All will directly degrade the function of the vocal cords.

Problems related to resonation

Resonation can lead to poor sound quality. When the resonators fail to cooperate properly, the quality of the sound will be either too bright or too dark. One needs to be able to feel the positions or places for producing good sounds. Beginners usually find it hard to develop this sensation. Mental imagery can be useful to develop correct concepts and feel.

An overly bright sound comes mainly from over-emphasis on the mouth and not enough on the throat. This is evident when students try to sing an ascending passage. As they sing higher and higher, they tend to open their mouths more and more, which increases the space inside the mouth. However, when the mouth is too wide, the larynx will be raised, causing too much pressure in the throat. Students have the sensation of going up stairs. They mistakenly think that when the notes go up, their larynx should too. As a result, the tone will sound strained.

Too much emphasis is placed on the throat and not enough on the mouth causes a tone that is too dark. When the throat is working too hard to produce the tone, too much tension is created on the larynx. It is possible that the students may think that the larynx must go down while they are singing a descending passage, causing them to "swallow" their notes. When singing down, one should imagine walking up a hill. Otherwise, the pitches are very likely to go flat and out of tune, and the tone may be unpleasant and muffled.

Habits are hard to break. Once a person develops an incorrect laryngeal posture, it can be quite difficult to correct. A bad habit that takes a month to acquire may take a year to correct. Therefore, students need to be cautious when they practice.

Problems of the vocal mechanism

(1) Faults of the tongue

The tongue must be free of tension at all times. This muscle, however, is difficult to control voluntarily. Students usually are unaware of tension in the tongue. Generally, students tend to hold the tongue elevated in the mouth, pulled back into the throat, which causes tension moving towards the larynx.

Sometimes the tongue moves too fast, as if vibrating. In this case, singers are unable to stabilize the movement, and the singing sounds wavy. If the tongue is moving too slowly, it can cause excessive tension that suppresses the mobility of the tongue. When the tongue is rigid, articulation of the sound cannot take place. Students can try to practice in front of a mirror and sing with the vowel [i]. They should pay attention to how flat and relaxed the tongue is resting on the gum ridge.

(2) Faults of the jaw

Some students try to sing with their chins too dropped. This will depress the throat and create tension. The best position of the chin for singing is to simulate the position of the onset of a yawn. If students cannot obtain this position and their chins are too dropped, the larynx will be too depressed. As a result, too much air pressure is forced into it. The muscle will tense, and the sound will be tight.

(3) Faults of the lips

Lips should be relaxed and flexible. When students do not move their lips, the other related muscles, such as the jaw, the soft palate, and the tongue will tend to be immobile. When they are not doing their jobs in articulating the tones, the students will be unable to sing the pitches accurately.

Conversely, some students move their lips too much. They look like they are chewing something. Excessive movement of the lips usually destabilizes the pitch. Some students lock their lips in a particular position, such as a fixed smile, which also creates tension.

Other Problems of Vocal Production

(1) Students who do not have good control over their voices and a high degree of muscle coordination.

Some students do not know how to control their voices or acquire good muscle coordination for singing. Although they can sing, they do not sing well. Some problems include lack of abdominal support, shallow breathing using the upper chest, and too much air pressure and tension in the abdomen, which prevents the suspension state of breathing. Their voices are strained and notes they sing are flat, especially towards the end of the phrase.

Some students have poor posture. Their bodies are not aligned properly: their heads tilt back; their lower abdomens sag forward; their upper abdomens pull in or out too far; their chests are held too high or too low; their backs are twisted; their shoulders are tensed; their arms and hands do not hang freely and naturally; their legs are locked too tightly. All these bad postures cause low degree of muscle coordination. Poor posture leads to poor breathing. Tones may be breathy and uneven, and vibrato may be shaky and unbalanced.

Generally, students have more difficulty with high notes than low notes. They tend to pull in and up on the upper abdomen, raise their chins, and push up their chests. In other words, as with the larynx, they think that when they are singing high notes, their whole body needs to go the same direction: up! Some students stretch their necks to their

limit and tilt their heads forward and up while singing, which causes the larynx to raise. The correct approach to singing high notes is counterintuitive for new singers: higher notes require a lower "center of gravity" in the body. The sensation can be described as "thinking deeper" for high notes.

Most students experience difficulty singing up or down wide intervals. Large intervals cause tension when the abdomen is too stiff for flexible breath control. Students should learn how to relax the breathing muscles, so that they can release some tension after singing the upper notes but still be able to obtain optimum level of support for the lower tones.

(2) Students who have not yet developed their voices and sing in a speaking voice range.

Many music students have never really sung before. In fact, these students may not yet have found their singing voices. They have difficulty differentiating between the vocal mechanism of singing and speaking, and they are unable to coordinate the vocal mechanism with the heard pitch.

Students who sing in a speaking range rarely use the head register. They are uncomfortable with singing high notes. When they try to sing high notes, their tones tend to be hard, tight, and forced, and their voices often "crack." This is particularly true for male students. Women may have better command over the head-voice mechanism, while most men have rarely explore their head voices.

(3) Students who try to sing outside their normal singing range.

Students who sing outside their normal singing range are often uncomfortable with their singing. They often try to imitate their teachers' voices. A male student who

imitates the voice of a female teacher by singing in her vocal range, can become vocally disoriented. A female student who imitates the voice of a male teacher can find herself singing below her normal singing range. She finds it difficult to generalize to her own singing voice.

Students who sing above their normal singing range are usually straining and not relaxed because they are trying to push their voices. According to Romaine, signs of strain are: "frowning, wrinkled forehead, clenched fists, chin held high, red face, rigid jaw, protruding neck tendons, and so on."[37] These students usually endure frustration in class.

Despite concerted effort and practice, some students still sing below their normal singing range. This may due to the fact that they are unable to hear the pitches they are producing. In this way, the wrong pitches remain uncorrected by the ear. It is also possible that these students are accustomed to singing in only certain keys, so that when they are asked to sing a melody that is not in a key they know well, they cannot reproduce the tune accurately.

(4) Students who can sing with a group but not individually and who can sing individually but not with a group.

Some students can sing in tune with a group but not individually. These students often sing out-of-tune. They rely on their fellow students to give them the notes. When they sing individually without the help of other students, they have difficulty reproducing a melody. They may not be sensitive to melodic contour and pitch changes and, as a result, they sing inaccurately.

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[37]Westervelt Blanchard Romaine, "Developing Singers from Non-Singers: An Investigation of a Speech Pitch Control Remedial Procedure" (Ed.D. diss., Columbia University, 1961), 12.

Some students can sing individually but not with a group. The problem, perhaps, is due to the lack of experience singing with the other people. These students generally have poor listening skills and are usually lost singing in a crowd.

Problems concerning vocal health

Singing involves the whole body. If any part of the body is not functioning well, it will affect the performance of the singing voice. For example, any kind of infection in the lungs, throat, head, mouth, or even stomach will make it difficult for the singer to exercise full control of pitch or breath. And as the voice itself is the instrument, vocal discomfort leads to singing malfunction.

A singer suffering from a cold or sore throat may only need to stop singing and speaking until the infection is over. Severe laryngitis or edema (swelling) in the vocal cords may eventually develop into vocal nodes, which necessitates consulting a laryngologist. Otherwise, the problem will only get worse with strenuous singing.

Vocal damage can be easily done by incorrect technique, bad vocal habits, or singing in poor physical health. Singing with a strained throat is the primary cause for vocal damage. In addition, trying to sing in the wrong voice classification or singing at the extreme of the range is damaging. (Usually singing too high is more damaging than singing too low.) Also harmful are singing too loud when the singing technique is not yet developed, and singing for a long period without proper rest.

Other General Non-Voice Related Problems

Several general non-voice related problems that students commonly encounter in a sight singing class can be identified. Some are musical, others are physiological, and still others are motivational.

(1) Inability to match pitch

Students who play fixed-pitch instruments may be less sensitive to pitches than are those who play variable-pitched instruments, such as unfretted strings and trombone. These students may not engage their ears fully as they play, trusting the instrument to produce the correct note when the correct key is pushed. Such students may find singing, which uses the ultimate variable-pitched instrument, difficult to control.

On the other hand, some students may be capable of matching pitches, but their voices tend to behave unpredictably, even though their ears work well. Such musicians may have never tried to sing and, in fact, assume that they cannot sing. When they are asked to reproduce a note that was just played, they may sing another note without realizing it. Even if they do realize that they have sung an incorrect note, they may be unable to control their voices enough to sing the correct one.

(2) Inability to hear musical relationships

Students are often asked to learn melodies from memory in aural skills class. In order to do this, they must be able to audiate the melody, meaning that they must have an "aural understanding" of the melodic structures—tendency tones, cadences, contour, harmonic implications, and meter, to name a few. Karpinski comments, "The more music listeners learn, and the more *about* music they learn, the wider their field of expectations will be and they will therefore experience fewer expectancy violations and consequently fewer errors in memory and understanding."[38] Inexperienced musicians who have not developed a strong aural understanding of musical grammar through

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[38]Karpinski, *Aural Skills Acquisition: The Development of Listening, Reading, and Performing Skills in College-Level Musicians*, 69.

listening (and singing) will have more difficulty audiating and memorizing a melody accurately.

(3) Difficulties establishing pitch collection and tonal center

Most musicians can easily sing a scale. Sight singing a melody with primarily conjunct, scalar motion is also easy. Melodies with disjunct, non-scalar motion can present problems for students who have difficulties audiating a diatonic pitch collection and tonal center. They are often unable to form a sense of tonal context, and the notes that they sing do not belong to a specific, audiated key.

(4) Lack of confidence singing

Some students think that they cannot sing and have no confidence singing for other students, even if they are perfectly capable singers. They are often uncomfortable hearing their own singing voices because they are not accustomed to the sound. In such cases, the teacher must convince the students that they can, in fact, sing, and encourage them to do so with more confidence.

Conclusion

The above discussion covers many problems found in college sight singing classes. The ultimate solution to these problems is improved vocal technique. This does not mean turning students into opera singers, however. With the limited time available in a semester, it is unreasonable to expect students to be able to solve their problems right away. Instead, the sight singing class should help lay the foundation for proper singing. The following chapter gives some guidelines for helping students and teachers deal with some of the most common problems in singing.

CHAPTER 3

SOLUTIONS AND SUGGESTIONS FOR ASSISTING STUDENTS EXPERIENCING DIFFICULTIES IN SIGHT SINGING CLASS

Students who have not learned to use their voices correctly will experience frustration when singing. Teaching at least the rudiments of proper vocal technique should be part of the sight singing class. This chapter has two parts. The first part is devoted to basic corrective procedures to help students solve some common vocal faults. The second part contains suggestions for helping students overcome the technical difficulties found in selected tunes from a commonly used sight singing text.

Basic Principles of Singing

Posture

Good posture is mandatory for effective singing. As discussed in the last chapter, good posture (1) encourages proper breathing; (2) helps to reduce tension of the back, neck, shoulders, and facial muscles; (3) facilitates a free and easy vocal sound; and (4) demonstrates confidence and assurance. Good posture is the essential first step for all singing.

Many students have similar posture problems while singing: they will either (1) tilt their head right or left, front or back; (2) lift their chin too high or too low; (3) raise their shoulders and collapse their chest; (4) twist their back; or (5) place their feet too far apart or too close together. A brief description of good standing posture is as follows:

1. The feet should be about ten inches apart from each other.
2. Both legs standing firmly on the same surface of the floor.

3. Knees should not lock; instead they should have a slight bent.
4. The back should be straight.
5. The chest should be lifted comfortably high.
6. The shoulders should drop down gently and be pulled back slightly.
7. The head should be directly over the shoulders.
8. Arms and hands are dropped freely and loosely at the singers' side.
9. When seated, one should lean forward with the back straight, hips back, neck straight, some weight on toes and spines, and hands resting easily in lap. The legs should not be crossed.
10. When holding a score while singing, one should hold the score with one hand a few inches from the chest. Neck should bend slightly. Standing and sitting should not be any different as described above.

The following is an exercise that singing teachers can do in class to help student to establish correct posture. This exercise begins by pulling the shoulders straight back easily, until the shoulder blades feel as though they are touching each other. While doing this, the head and neck must be kept still. This movement should be executed four times. On the last time, students should bring the shoulders back and then pull them down as if the hands and arms are reaching for the ground. This exercise can help students obtain a feeling of extreme width across the chest as well as a leveling of the shoulders. With persistent practice, students will be able to overcome rounded shoulders, and the chest will be widened. With better position of the shoulders and the chest, the body will be provided a proper alignment for better control of breath while singing.

Breathing

Breathing for singing is not natural; students must regularly practice this type of breathing until it becomes second nature. Shallow breathing that involves only the upper chest is not adequate for good and accurate singing. The following suggestions for good breathing technique offer an assortment of tips, exercises, and imagery that can help an inexperienced singer:

1. Attain good posture before inhaling.
2. Do not over- or under-inhale.
3. Think of the air moving into the lower part of the body while breathing.
4. A slight bend of the knees helps the singer feel the air coming out the mouth.
5. Imagine drinking through a straw, so air moves into the lower abdomen.
6. Imagine smelling a rose, so air goes deep through the nostrils.
7. Put one hand on the lower part of the abdomen and one hand at the base of the back to feel the air coming in and the abdominal walls expanding during inhalation.
8. Imagine the breath that comes with being surprised: the mouth is open slightly, and the breath is short but deep.

A simple classroom exercise that can help students to get the breath moving and to strengthen the chest muscles and lower abdominal muscles is whispering the word "hook." While whispering the word, the abdomen should be pulled in, and air should be expelled through rounded lips, pronouncing "hoo." Then, at the end of the breath supply, a sharp (but not felt in the throat) voiceless "k" should be sounded.

Another simple classroom exercise is to ask students to produce a hissing sound made through the teeth for about 30 seconds without taking a breath. With consistent practice, this exercise should help students obtain longer breath for singing.

Support

Good support usually refers to good abdominal support. One must have enough air "stored" in the abdomen in order to have enough energy to support a tone. Students will need to concentrate on controlling their abdomen until it becomes a conditioned reflex. Below are some hints for good support that can be helpful for inexperienced singers:

1. Use correct posture and adequate breath.
2. Imagine swimming underwater with held breath. The lower abdomen and the muscles in the back should be expanded.
3. Speak continuously for 30 seconds without taking a breath. In this way, you can feel more support in your lower abdomen.
4. Sing "woo" for about 30 seconds to feel the resonance deep in the body.
5. Lie down with a dictionary on your abdomen, then try to lift it up and hold it with your abdominal muscles.
6. Push a grand piano or a stationary object, such as a bookshelf or a table while taking a deep breath to feel the support in the lower abdomen.
7. While standing with legs spread, take a deep breath and push against a grand piano with both hands. You should feel the air go deep into your body.
8. Shout "Ah!" or "Hi!" as if to someone in the distance. You should be able to feel the energy from the lower abdomen.

In order to develop an expansive and strong ribcage for good breath support while singing, students can try to expel the air through the teeth in a sound of "sh" until the air stored in the lower abdomen is exhausted. As the air is exhaled, the abdominal area should move slowly inward. When all the air is exhaled, however, a "snap breath" should be taken so that the lungs quickly fill with air. In this way, a strong sensation of width and pulling can be felt across the back and through the ribcage. This exercise should be practiced daily, so that the process of breathing for good support will become an effortless action.

Tone quality

Good tone quality requires a relaxed larynx, which comes from good posture and proper breathing. Trained vocalists strive for a clear and bright sound, regular vibrato, and a "ringing" resonance. Although students in a sight singing class cannot be expected to achieve the tone quality of trained vocalists, they can work toward a light, clear sound, with a relaxed vibrato, which can help to improve the accuracy of the notes produced. The following are some suggestions for producing good tone quality:

1. Use good posture and good breath support.
2. Do not open your mouth too far.
3. Keep the jaw and tongue relaxed.
4. Think the pitch before attempting to sing it.
5. Imagine the onset of a yawn when the mouth opens to increase space.
6. Think of "head tone" and hum scale degrees 5-4-3-2-1.
7. Imagine sighing when singing high notes.

8. Sing with the more "open" vowels, such as [a], [o], and [u] than "closed" vowel, such as [i]. Even if you really have to use [i], try to use it only for the lower passage, and shift to use more "opened" vowels for singing higher notes and register. Some suggestions on this issue will be given in the next section.

A classroom exercise that can help students to acquire a "ringing" resonance is to sing the scale 5-4-3-2-1 with the syllables "ding," or ng." This exercise is sung in the middle range on one breath, and should be sung ascending by half step each time to the new key. When singing the syllable "ng," students can try speaking the word "hung" first in order to get familiarized with the syllable. Students will have a sensation of singing with head tone while singing the scale with either of the two syllables. This is an excellent exercise to help to bring the tones forward and more focus.

Another exercise that can help students to acquire a more relaxed tone quality and better vocal placement is to "sigh" in the middle register, then sing the scale 5-4-3-2-1 with the vowel "u." This exercise must be sung in the middle range only, descending by half step each time to the new key. Students should take a snap breath between the "sigh" and the scale. Students will feel a relaxed on the larynx after practicing the exercise.

Characteristics of a good vocal sound

Below are some general characteristics of a good vocal sound:

1. The sound is freely produced; it does not sound tense.
2. The sound carries energy; it is not breathy.
3. The sound is rich and resonant; it does not sound dry and straight.
4. The sound is clear; it is not too soft, nasal, or hoarse.

5. The sound is bright; it does not sound weak or colorless.
6. The sound is firm and focused; it does not sound shaky or wobbly.
7. The sound is smooth; it does not sound inconsistently produced.

Solutions and Suggestions for Solving Singing Difficulties and Problems in Sight Singing Exercises

This section offers suggestions that can help students to overcome some of the singing and sight singing problems described above. It does not aim to solve all vocal and sight singing problems. Instead, it brings up some important singing issues and their possible solutions.[39]

Warm Up Exercises

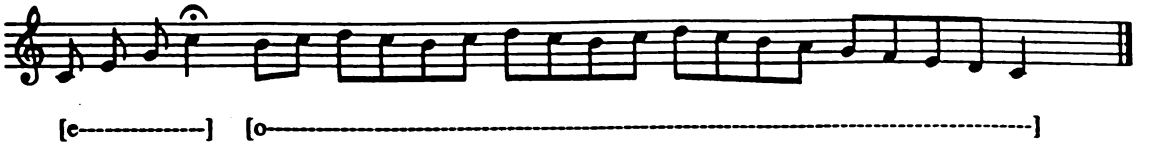
Inexperienced singers typically do no warm up before they start practicing. However, in order to sing better and more effectively, even in the sight singing class, students must warm up their voices before moving on to exercises. As singing involves the whole body, if some parts of the body are not functioning well or relaxed enough, the vocal mechanism and the quality of the vocal sound will be affected. Therefore, some simple physical exercises, such as simple bending and stretching body exercises sometimes are recommended.

Warming up the voice offers three advantages. First, it can help expand the vocal range. Before any kind of formal singing, students should stretch their vocal cords just as athletes stretch their legs before they start to run. With an adequate, ten-minute warm up, the vocal instrument will become more flexible. As a result, when the students sing something that stretches to their limits, their voices are less likely to suffer injury and better able to reach high and low notes.

Secondly, warming up can help with accuracy. With proper warm up, the voice is "tuned." Singers are more likely to have good breath support, proper posture, and correct vocal placement after warming up. A singer who is physically and mentally prepared to sing will have more awareness in attaining the right pitches. In this way, the ability to attack the desired pitches is enhanced.

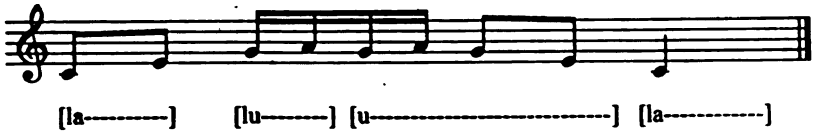
Thirdly, with regular warm up, the voice will always be in good shape. As a result, a long warm-up session may not be as necessary before each practice session. In addition, the voice will always be brighter and clearer after warming up. Some basic warm up exercises are recommended here (Ex. 3.1-3.23). The first ten of the listed exercises are some vocalises to help the voice to get started. These warm-ups can be done at beginning of every sight singing class, and by the students when they practice. The last exercises can help students to deal with some specific issues of vocal production. Each exercise should be sung in as many keys as possible, depending on the students' vocal comfort, ascending and descending by half step each time to the new key.

Example 3.1

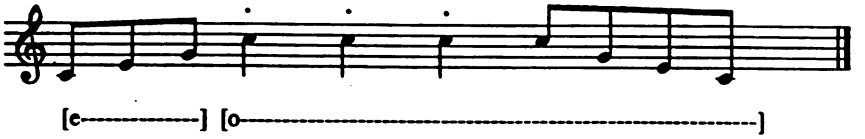


[39] For detailed discussion of the correction of vocal production and its related issues, teachers and students should refer to the vocal pedagogical literatures listed in the bibliography.

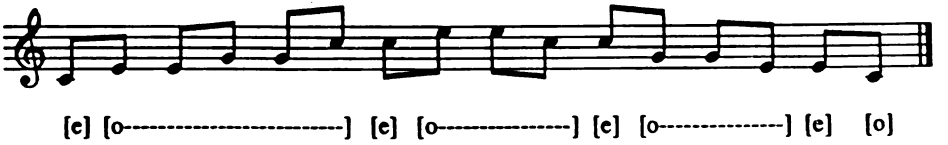
Example 3.2



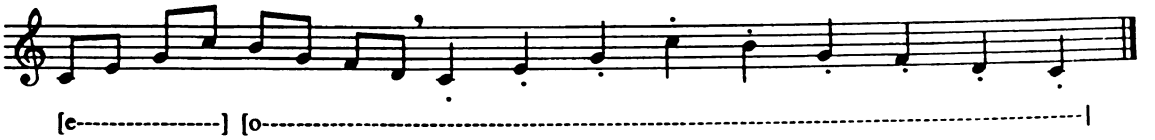
Example 3.3



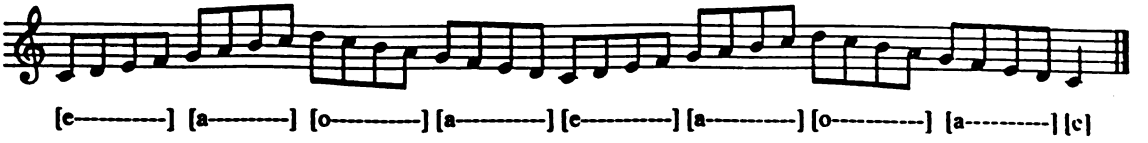
Example 3.4



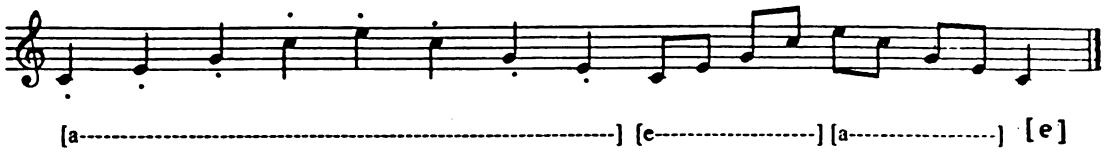
Example 3.5



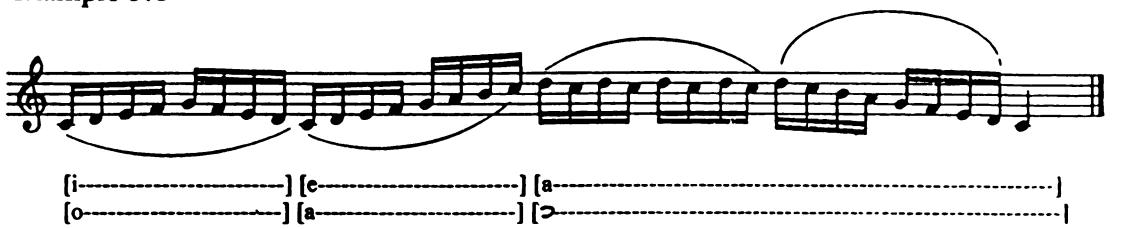
Example 3.6



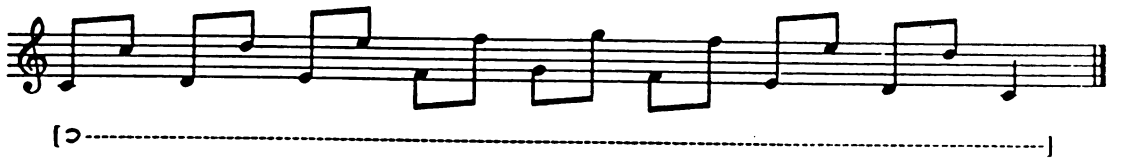
Example 3.7



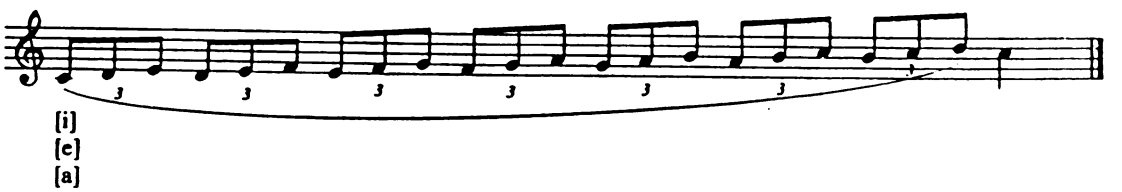
Example 3.8



Example 3.9

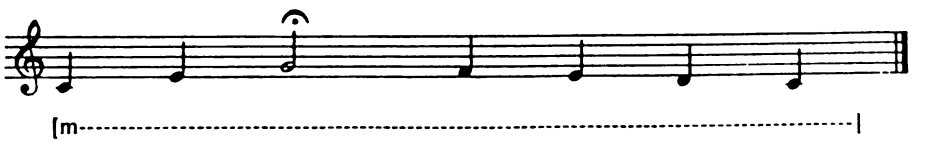


Example 3.10

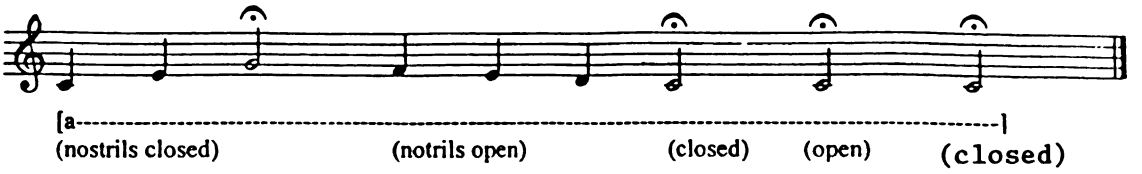


Head Resonance

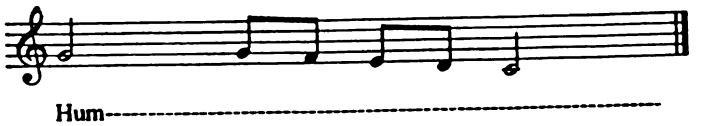
Example 3.11



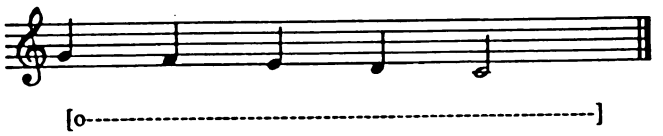
Example 3.12



Example 3.13



Example 3.14



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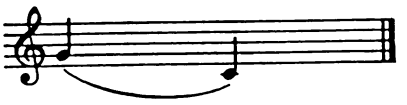
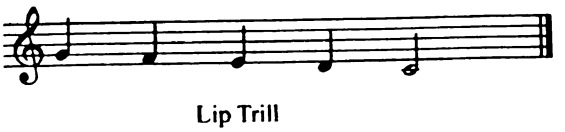
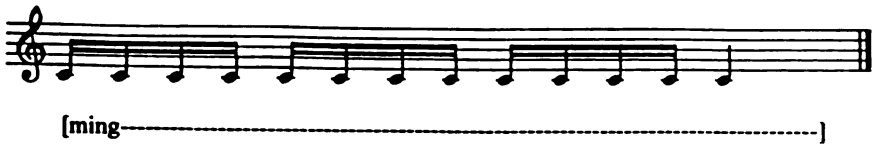


Example 3.16

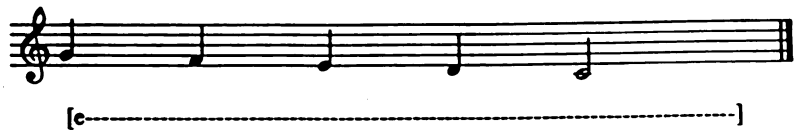


Example 3.17

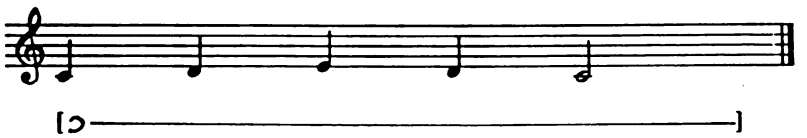


Larynx Relaxation

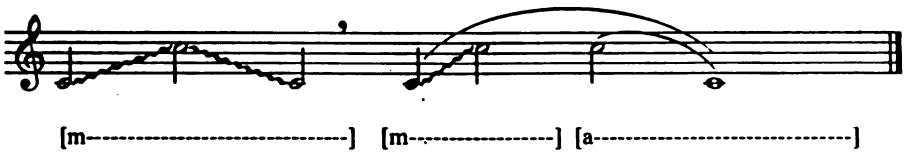
Example 3.18



Example 3.19

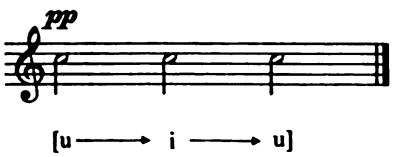


Example 3.20

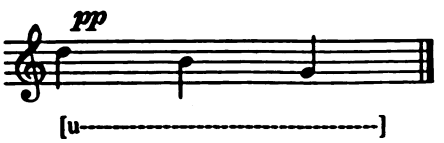


Upper Register

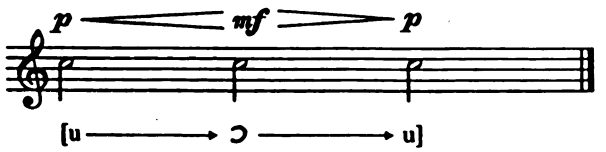
Example 3.21



Example 3.22

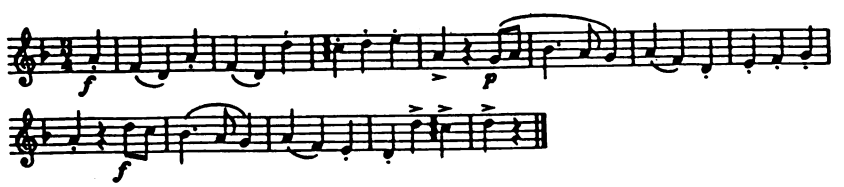


Example 3.23

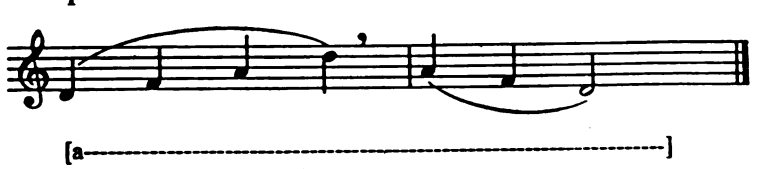


Because warming up is so helpful, teachers should use warm-up exercises that emphasize certain characteristics or difficulties of assigned singing exercises in order to help students better prepare their voices. For instance, if the melody for sight singing is largely triadic (see Ex. 3.24), warming up with an arpeggiated vocalise in the key of the melody for sight singing will be helpful (see Ex. 3.24a). The pattern in Exercise 3.24a also serves as an aid for students to acquire a sense of D-minor. Singing the vowel [a] will help students to obtain a wider oral space. In this way, they may find it easier to sing the high note E in measure 3.

Example 3.24. Berkowitz et al, *A New Approach to Sight Singing*: Ex. 84, p. 17.



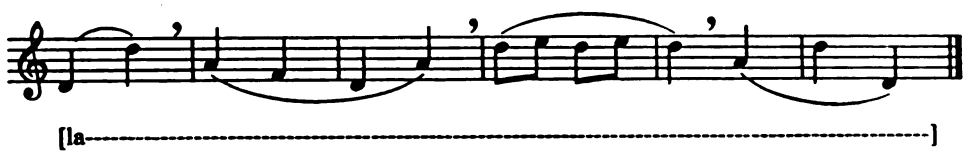
Eample 3.24a



After singing the above exercise in the key of D-minor, teachers should ask the students to sing the same pattern a semitone higher and keep moving progressively upward for two to three more half-steps. After warming up with the same pattern three or four times in progressively higher keys, students will have a stronger sense of tonality when they return to the original key.

The exercise in example 3.24b can help students sing the challenging octave leaps in measures 2 and 11, and the perfect-fifth leap in measure 1. Students should observe the breath marks carefully. Each breath will give the phrase new energy and help to relax the vocal mechanism. Teachers should ask students to repeat this exercise several times in the same key. This can help them to familiarize themselves with the sound of the intervals as well as the oral space needed for producing the intervals.

Example 3.24b



Before singing the above exercise, students should be able to audiate the pitches (especially for the large intervals), so that a good attack of the pitches can be executed. Physically, the jaw should move and drop freely and the throat should be relaxed. Especially when singing the fourth measure of the exercise where the high notes D and E are found in succession, students should pay careful attention to the coordination of breathing and the relaxation of muscles. Students should remember not to move the jaw when singing that measure. Moving the jaw will result in poor intonation, and it will

make the high E even harder to reach. Students should feel a circulating sound of the two notes inside the mouth while the tongue is lying flat and the jaw is slightly dropped.

Teachers should always bear in mind that no single warm-up exercise will fulfill all the requirements of different sight singing melodies. Teachers should select or design different warm up exercises that addresses the challenges in each melody. Teachers may find the 23 warm up exercises recommended here to be useful as the basis for constructing their own exercises.

Understanding of the Students' voice types

Students in an aural skills class often do not know what voice part they should sing. The teacher should help them determine their voice types. Many students are not familiar with their singing voices. They tend to sing in the range of their speaking voices, which may be a full octave below their singing tessitura. Some inexperienced female singers choose to sing in the alto (or even tenor) range although they actually can sing very high; and some male students think that they should sing low but they actually have a high tessitura. For this reason, by knowing their voice types and vocal ranges, not only can the students achieve better in the sight singing class, but they can also develop their voices to their maximum potential.

The criteria in determining voice classification were discussed at length in Chapter II and will not be repeated here. Instead, I present here some suggestions for helping the teacher and students determine students' voice types. Ideally teachers would hear individual students sing at the beginning of the students' sight singing instruction. The teacher would ask them to sing lightly simple five-note scales (ascending and descending) in progressively higher keys on the syllable [e]. The two exercises below

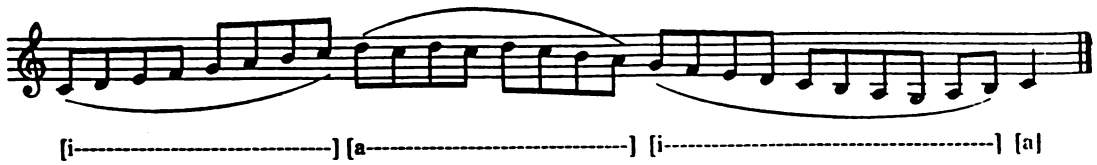
(Ex. 3.25a & Ex. 3.25b) have wider a range to give the teacher a better idea of the singer's vocal registers. Ask the students to sing in progressively higher and lower keys, always keeping their voices relaxed and light. Listen for the break point where chest voice transitions to head voice. Tenors and sopranos should be able to sing easily up to G (G4 for tenors, G5 for sopranos) without straining or slipping into an artificially thin falsetto. Basses and altos may be able to reach these notes, but the tone quality will be thin and strained.

Sight singing teachers should always bear in mind that voice type means both range and tone quality. A male singer should not be called a baritone or bass just because he cannot sing high. Nor should a female singer be called an alto merely because she has a rich chest voice. High range will often rise as a singer learns to sing with relaxation and proper breathing. Often, a light tone quality serves as a clue to a potential soprano or tenor high range. If the voices sound warm, mellow, and dark with more chest voice, they are more likely to be altos or basses. In short, the range, the tessitura, and the tone quality should be used together in determining a student's voice type.

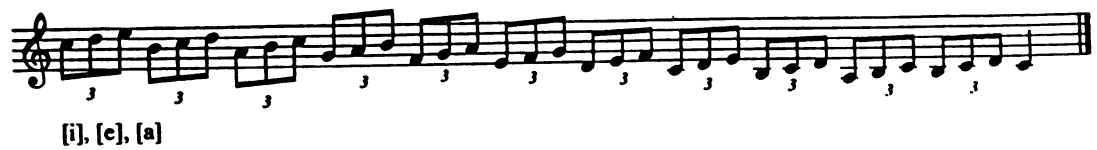
If time is limited and teachers feel that they will not be able to listen to each student individually, a rough idea of students' voice types can be determined in a group setting. The teacher can divide the class into men and women and ask each group to sing through several scale exercises in progressively higher or lower keys (see Ex. 3.25a and Ex. 3.25b). As the exercises reach the upper and lower limits of the vocal ranges, ask students to drop out when they feel that they are no longer able to produce a relaxed, full tone. Explain to the class which voice type should feel comfortable singing the exercise at that point, so that students can determine their own voice types. The teacher may need

to ask some individuals to sing when they are unsure of their voices, but such self-testing can at least give a rough idea to inexperienced singers where their vocal ranges fall.

Example 3.25a



Example 3.25b

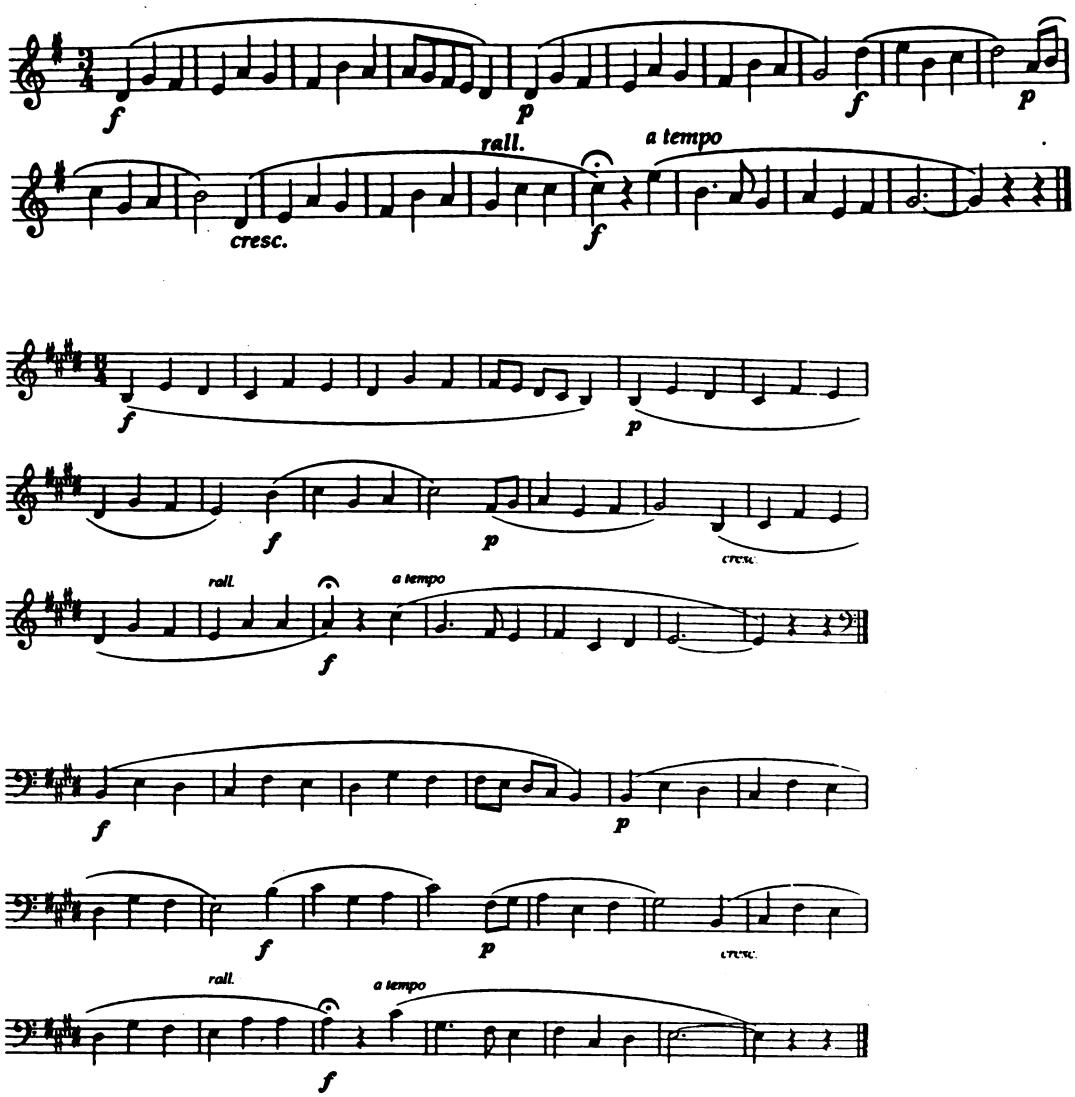


Best Use of Teaching Materials

Sight singing teachers can select songs and exercises to target specific vocal, theoretical, and musicianship issues. They should always keep several things in mind, however, when choosing material for their students to song. For example, some exercises fit well for certain voice types but not the others; or the range of some exercises is too wide for all students to sing comfortably. If the teacher is trying to help students expand their ranges, such exercises might be appropriate; otherwise, they should be avoided. Teachers should choose exercises that do not span more than an octave for the first several classes. They can gradually select exercises that have a wider range, but limiting it to a maximum range of a tenth. Berkowitz et al (1997) has many good tunes that are within an octave or a tenth, with a few that have wider ranges.

Melodies that lie too high or low can be transposed to more appropriate keys, but only by writing out the transposition rather than having students read in one key and sing in another. For example, the teacher can transpose melody #164 in Berkowitz (Ex. 3.26) down a third for basses and altos to help them avoid the high E, perhaps using different clefs for additional reading practice. Students can even be asked to write out the melody in the key that they find most comfortable. Not only does this help students become more aware of their own vocal ranges, it also helps them improve their basic theory skills.

Example 3.26. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 164, p. 32, original and transposed version of Ex. 164 for the alto and bass:

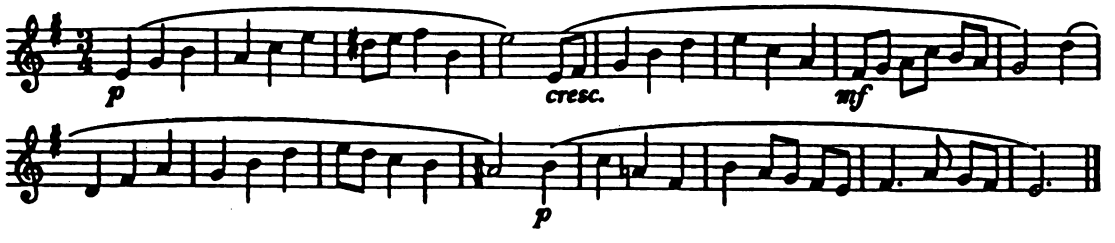


Singing Ascending Passages

When a melody ascends either by step or leap, students should gradually increase the energy, space, and depth of their singing. Students who think that they cannot sing the higher notes reduce unconsciously the energy in their singing. When they are timid, their mouths are usually not opened wide enough, which results in less depth and reduced breath support. They raise their chins, tilt their heads back, and elevate their larynx when they are trying to reach the high notes.

Consider example 3.27. Three of the four phrases contain upward disjunct motion that covers at least an octave. Some inexperienced students will find such upward motion by leap harder to sing than stepwise upward motion. The teacher should suggest that each note requires more energy than its predecessor. In order to acquire more energy, the student should sing as if crescendoing, gradually increasing the feeling of loudness as the melody gets higher. It is important that students use their whole body to pull out the energy; it should not come from just one place (such as the throat or abdomen). To help the students visualize this concept, the teacher can suggest that they imagine shouting from one hilltop to another.

Example 3.27. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 204, p. 41.



As the melody goes higher, students must also acquire more oral space. As discussed in chapter 2, opening the mouth wide vertically with the jaw slighted dropped

will create more space inside the mouth and throat. The added space will help maintain the proper laryngeal position. Students should remember that when they sing the ascending patterns in the previous example, each note of an ascending phrase requires slightly more space than the note that precedes it. Using the vowel [a] can help to obtain a wider oral space.

Students should be reminded of the image of beginning a yawn or even vomiting to help them feel the increased space in the back of the mouth. The mouth should be opened progressively wider as the pitch rises, but it should never reach its maximum opening, which can create extra tension, making high notes harder to sing. Students should also be reminded that when the melody goes higher, more depth is needed. As the students sing the first four measures of example 3.27, they should feel the sensation of moving deeper and deeper within the body and vocal mechanism as the notes rise. Students should feel their center of gravity moving lower in the body when he needs more support for the high notes. The teacher can ask students to imagine walking downstairs as the melody moves up. In this way, more support is anchored within the body.

Several physical activities can help students acquire the sensation of depth in the body and vibration in the head. Students can do the motions of brushing long hair, starting at the top of the head and moving down as the notes move up. Students can also be asked to bend their knees in a sitting position while they are singing the highest note of each phrase. For example, when they reach the highest note F in the first phrase, students should immediately bend their knees and sit on the note. This can help the

students to lower their centers of gravity and feel that more energy is now going deep within the body.

Singing High Notes

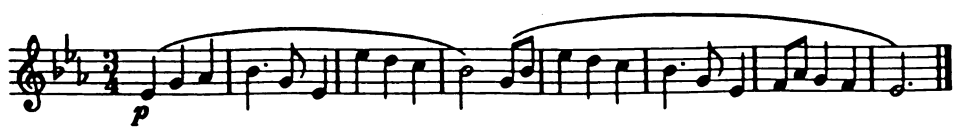
Most students find high notes very hard to sing, especially those preceded by a large upward leap. When singing such high notes, students should try not to think of the upper note as a high note; instead, they should think of it as a note that requires more energy. Teachers can suggest that students sing the whole phrase (including high notes and low notes) loudly several times. Because singing loudly requires more energy, students will have a better sense of how the high notes should feel, even when they are sung softly.

To remind themselves of what correct laryngeal posture feels like on the high notes, students can hold their noses while breathing through their mouths. They should feel that the larynx is slightly depressed, the jaw is slightly dropped, and the tongue is lying flat on the floor of the mouth. Sniffing through the nose (perhaps even making a snoring sound) while the mouth is slightly opened and the jaw is slightly dropped will also create the correct laryngeal position.

Students should maintain this correct laryngeal position while they are singing high notes. In the melody in Example 3.28, for example, students can take a quick sniff at measure 3 before the high E-flat. In this way, the phrase is now divided in two. Although this may interrupt the flow of the melody, students will find it easier to reach the high note after the wide leap. However, the next high E-flat at measure 5 should not be approached in the same manner. Instead of taking a quick breath after the B-flat in measure 4, students should increase the amount of energy for singing the high note E-flat.

Students can then gradually decrease the amount of energy needed for the rest of the exercise, remember not to reduce all support until the last note is executed. If the leap preceding a high note is not too wide, students can try sliding in a portamento from the lower to the upper note to help them retain correct laryngeal posture between the two notes. Eventually, students will need to eliminate the glissando and try to stay connected as much as possible.

Example 3.28. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 59a, p. 12.



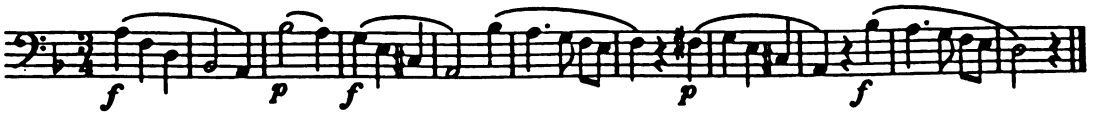
To help sing melodies that leap to high notes, students can do warm up exercises that activate the jaw, lips, and soft palate. Exercises that involve sounds such as yah, bah, mah, lah, etc. can help students to keep their voices in high position. The consonants "b," "m," "l" with the vowel [a] ("h" is not pronounced) enhance the attack of the head voice. With such warm up exercises, singing high notes should become easier.

Singing Descending Passages

Singing from high to low does not require as much energy, space, or depth as singing from the low to high; in fact, all these factors should decrease progressively as the music gets lower and lower. When singing lower, students typically pull the chin down against the throat, depressing the larynx. Some students may use too much support and energy, so that their sound becomes pushy, making it harder to reach the lower notes. Students should understand that when singing lower notes, they should relax and release

body support. The mouth is less wide than it is for higher notes because low notes do not require as much space; singing softer and thinking less depth can also be useful on low notes. Consider the following example (Ex. 3.29).

Example 3.29. Berkowitz et al., *A New Approach to Sight Singing*: Ex. 234, p. 49.



Students often sing flat on descending scales. To help avoid this, students should practice singing the descending five-note scales (5-4-3-2-1) in major with the syllable "ding." They should concentrate on the vibration of the head tone while singing the exercise. Because the syllable stimulates the vibration in the head and chest, students will find it easier to keep their voices in the high position.

Many voice teachers encourage students to think of walking up stairs when they sing downwards. Each tone needs more upward movement than the one just above it. In Example 3.29, most of the descending passages are followed by a large leap. When singing this example, students will need to adjust the energy used for both upward leaps and downward leaps within a short time because of the short phrases. As discussed in the previous section, upward movement needs to be approached with more energy, space, and depth, while downward movement requires less of everything. Students should feel the energy, space, and depth gradually decrease after reaching the high B-flats in each passage.

If students still find the exercise difficult to sing, they can try using the brighter vowel [a]. Students can pull back the corners of the mouth into a smile when singing the

exercise with the vowel [a]. In this way, the sound can avoid getting too dark, and the pitches can be "lifted up" a bit to avoid going flat. Singing flat on descending passages is typically due to incorrect voice placement. Retaining the high placement for the low notes will make the descending notes less likely to get flat by small increments. This method, however, might cause excessive tension in the soft palate and also elevate the larynx if the smile is exaggerated. Students should adopt this approach with care. If they feel that they have too much tension on larynx and the soft palate, they can try to relax the tension by singing 1-2-3-4-5-4-3-2-1 with the vowel [i] very slowly. They should keep the sound in the front of the mouth even when the pitches descend. Gentle lifting of the soft palate is also helpful for dealing with descending passages.

Students may find it helpful to disregard the dynamics markings of Berkowitz et al. For example, the A in measure 1 can be forte followed by a decresendo. In measure 3, the B-flat should be marked with sforzando followed by a decresendo. Likewise for the phrase that startes with B-flat in measure 5 and the last phrase at measure 9. In the fourth phrase at measure 7, students can sing a mezzo forte at the beginning of the phrase, with a brief cresendo from F-sharp to G followed by a decrescendo. Example 3.30 shows these changes:

Example 3.30.

Because the melody lies in a relatively low register, thinking lighter and brighter could be helpful. Even as descending patterns need less support and body involvement, thinking lighter can reduce the energy needed for producing low pitches, making the voice easier to control and more flexible. In addition, it is easier to release tension when the sound is not heavy, which will make the lowest notes easier to reach.

Use of syllables

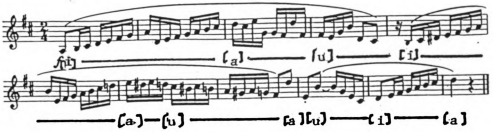
Solfege syllabels and numbers are in common use in sight singing classes. Although they can facilitate sight reading, they can interfere with proper vocal production. Several modifications can help. Teachers using solfege syllables should take out all final consonants when they occur, particularly removing the final "l" in "sol." The final "l" tends to stop the production of the sound and create tension. The same problem occurs with the numbers "four," seven," "one," and "five." When singers articulate the final consonants of the numbers, the tongue, jaw, and lips become involved. Unfortunately, removing the final consonants from the numbers is not practical; nonetheless, the teacher should be aware of the problem.

Some melodies may involve both high and low registers. Singing such melodies with only one vowel may be less effective. Instead, singing with a combination of vowels may be helpful, usually using [a] for singing the higher register and [i] or [u] for the lower register. The vowel [a] requires a wide-open mouth, creating more space and easier high notes. The vowel [i], brings the tongue farther forward, making lower notes easier to sing. For the vowel [u], the lips are rounded and the tongue is farthest back. Students will feel like the sound is coming from the nose, but it actually comes

from the head. Although the vocal placement may seem relatively low, the space within the mouth is still large enough for singing the lowest notes.

Example 3.31 has a range of a twelfth, from A3 to E5. Using the three vowels will make singing the melody easier. The example is illustrated below, with suggested vowels underneath the notes.

Example 3.31. Berkowitz et al, *A New Approach to Sight Singing*: Ex. 285, p. 61.



Conclusions

Students encounter many challenges in sight singing class, particularly those students who are inexperienced singers. Some problems are mainly due to their lack of singing experience and singing skills, and some are caused by the lack of practice and good ear training. In the first part of this document I have tried to give some solutions for solving some general singing problems. The second part dealt with more specific solutions and suggestions for singing exercises to help improve the vocal technique of all singers. These solutions are by no mean exhaustive since they can only cover the most common problems found in a sight singing class. Other issues were left undiscussed, such as how to help male singers to use falsetto, or how to extend students' vocal ranges. These topics could fill a book and are thus beyond the scope of the discussion here. With the brief introduction of vocal production and vocal mechanism in Chapter 2, teachers

and students should have a better knowledge of singing, and they may even devise more creative solutions for solving singing difficulties.

BIBLIOGRAPHY

Bentley, Arnold. *'Monotones' – a comparison with 'normal' singers in terms of incidence and musical abilities.* Music Education Research Papers No. 1. London: Novello, 1968.

Benward, Bruce. *Sightsinging Complete*, 2nd ed. Dubuque, Iowa: Wm. C. Brown Company Publishers, 1973.

Berkowitz, Sol, Gabriel Fontrier, and Leo Kraft. *A New Approach to Sight Singing*, 4th ed. New York: W.W. Norton & Company, 1997.

Buckton, Roger. "A Comparison of the Effects of Vocal and Instrumental Instruction on the Development of Melodic and Vocal Abilities in Young Children." *Psychology of Music* 5, no. 1 (1977): 36-47.

Christy, Van A. *Foundations in Singing*. Dubuqua, Iowa: WM. C. Brown Company Publishers, 1970.

Colwell, Richard. "An Investigation of Musical Achievement Among Vocal Students, Vocal-Instrumental Students, and Instrumental Students." *Journal of Research in Music Education* 11, no. 2 (Fall 1963): 123-30.

Damschroder, David A. "Flexibility in the Theory Classroom: Strategies for the Management of Diversity." *Journal of Music Theory Pedagogy* 3, no. 2 (Fall 1989): 177-88.

Davidson, Lyle and Larry Scripp. "Sightsinging at New England Conservatory of Music." *Journal of Music Theory Pedagogy* 2, no. 1 (Spring 1988): 3-68.

Davidson, Lyle. "Songsinging by Young and Old: A Developmental Approach to Music." In *Musical Perception*, edited by Rita Aiello, 99-130. New York: Oxford University Press, 1994.

Davies, Ann D. M. & Emlyn Roberts. "Poor Pitch Singing: A Survey of its Incidence in School Children." *Psychology of Music* 2, no. 2 (1975): 24-36.

Davis, Jesse Foss. "The Effectiveness of Music Dictation as an Aid to Music Reading in Grades Seven and Eight." Unpublished Master's Thesis, Boston University, 1952.

De Zeeuw, Ann Marie & Roger E. Foltz. *Sight-Singing and Related Skills*. Manchaca, Texas: Sterling Swift, 1975.

Domek, Richard C. "Teaching Aural Skills to High School Students." *Music Educators Journal* 65, no. 5 (Jan. 1979): 54-57.

Elliott, Charles A. "Effect of Vocalization on the Sense of Pitch of Beginning Band Class Students." *Journal of Research in Music Education* 22, no. 2 (Summer 1974): 120-28.

Franklin, Elda. "Monotonism." *Music Educators Journal* 67, no. 7 (March 81): 56-8.

Foltz, Roger E. "Sight Singing in Relation to the Total Theory Program." *Indiana Theory Review* 4 (Winter 1981): 3-10.

Foltz, Roger E. "Sight-Singing: Some New ideas on an Old Institution." *College Music Symposium* 16 (Spring 1976): 95-100.

Gaiser, Paulene E. "A Study of Tone-Matching Techniques as Remedial Instruction for Non-Singers." Ph.D. diss., University of Oregon, 1961.

Gould, A. Oren. "Developing Specialized Programs for Singing in the Elementary School." *Bulletin of the Council for Research in Music Education*, no. 17 (1969): 9-22.

Gordon, Edwin E. *Rhythm: Contrasting the Implications of Audiation and Notation*. Chicago: GIA Publications, 2000.

Gordon, Edwin E. *The Psychology of Music Teaching*. New Jersey: Prentice-Hall, 1971.

Grutzmacher, Patricia Ann. "The Effect of Tonal Pattern Training on the Aural Perception, Reading Recognition, and Melodic Sight-Reading Achievement of First-Year Instrumental Music Students." *Journal of Research in Music Education* 35, no. 3 (Fall 1987): 171-81.

Hammer, Harry. "An Experimental Study of the Use of the Tachistoscope in the Teaching of Melodic Sight Singing." *Journal of Research in Music Education* 11, no. 1 (Spring 1963): 44-54.

Joyner, David R. "The Monotone Problem." *Journal of Research in Music Education* 17, no. 1 (Spring 1969): 115-24.

Karl, Harold Thomas. "The Effects of Melodic Dictation and Sight Singing on Music Reading Achievement." Ph.D. diss., Michigan State University, 1971.

Karpinski, Gary S. *Aural Skills Acquisition: The Development of Listening, Reading, and Performing Skills in College-Level Musicians*. Oxford: Oxford University Press, 2000.

Karpinski, Gary S. "Ear Training and Integrated Aural Skills: Three Recent Texts." *Journal of Music Theory Pedagogy* 3, no. 1 (Spring 1989): 129-49.

Karpinski, Gary S. "Five Recent Sightsinging Texts." *Journal of Music Theory Pedagogy* 2, no. 2 (Fall 1988): 275-96.

Klemish, Janice. "Treating the Uncertain Singer Through the Use of the Tape Recorder." *Bulletin of the Council for Research in Music Education*, no. 37 (Spring 1974): 36-45.

Larson, Richard C. "Relationships Between Melodic Error Detection, Melodic Dictation, and Melodic Sightsinging." *Journal of Research in Music Education* 25, no. 4 (Winter 1977): 264-271.

Larson, Steve. 'The Value of Cognitive Models in Evaluating Solfege Systems." *Indiana Theory Review* 14, no. 2 (Fall 1993): 73-116.

Long, Peggy A. "Relationships between Pitch Memory in Short Melodies and Selected Factors." *Journal of Research in Music Education* 25, no. 4 (Winter 1977): 272-82.

McKinney, James C. *The Diagnosis & Correction of Vocal Faults*. Nashville, Tennessee: Broadman Press, 1982.

Menuhin, Yehudi. *Voice*. Edited by Sir Keith Falkner. London & Sydney: Macdonald & Company, 1983.

Miller, Richard. *The Structure of Singing*. New York: Schirmer Books, 1996.

Miller, Richard. *Training Soprano Voices*. Oxford: Oxford University Press, 2000.

Miller, Richard. *Training Tenor Voices*. New York: Schirmer Books, 1993.

Pembrook, Randall G. and H. Lee Riggins. "Send Help!": Aural Skills Instructoion in U.S. Colleges and Universities." *Journal of Music Theory Pedagogy* 4, no. 2 (Fall 1990): 231-41.

Pembrook, Randall G. "The Effect of Vocalization on Melodic Memory Conservation." *Journal of Research in Music Education* 35, no. 3 (Fall 1987): 155-69.

Portor, Susan Yank. "The Effect of Multiple Discrimination Training on Pitch-Matching Behaviors of Uncertain Singers." *Journal of Research in Music Education* 25, no. 1 (Spring 1977): 68-82.

Riggins, H. Lee and Howard Irving. "Creative Sightsinging." *Journal of Music Theory Pedagogy* 2, no. 1 (Spring 1988):85-100.

Roberts, Emlyn & Ann D. M. Davies. "A Method of Extending the Vocal Range of "Monotone" Schoolchildren." *Psychology of Music* 4, no. 1 (1976): 29-43.

Roberts, Emlyn & Ann D. M. Davies. "Poor Pitch Singing: Response of Monotone Singers to a Program of Remedial Training." *Journal of Research in Music Education* 23, no. 4 (Winter 1975): 227-39.

Rogers, Michael R. *Teaching Approaches in Music Theory*. Carbondale and Edwardsville: Southern Illinois University Press, 1984.

Rogers, Michael R. "The Jersild Approach: A Sightsinging Method from Denmark." *College Music Symposium* 36 (1996): 149-61.

Romaine, Westervelt Blanchard. "Developing Singers from Non-Singers: An Investigation of a Speech Pitch Control Remedial Procedure." Ed.D. diss., Columbia University, 1961.

Rutkowski, Joanne. "The Measurement and Evaluation of Children's Singing Voice Development." *The Quarterly: Center for Music Research in Music Learning and Teaching* 1, no. 1 & 2 (1990): 81-95.

Trotter, Robert. "Suggestions for Teaching a Course in Music Listening." *Journal of Music Theory Pedagogy* 4, no. 1 (Spring 1990): 51-62.

Welch, Graham F. "Poor Pitch Singing: A Review of the Literature." *Psychology of Music* 7, no. 1 (1979): 50-58.

Wennerstrom, Mary H. "The Undergraduate Core Music Curriculum at Indiana University." *Journal of Music Theory Pedagogy* 3, no. 2 (Fall 1989): 153-76.

White, John D. *Guidelines for College Teaching of Music Theory*. 2nd. Ed. Maryland: Scarecrow Press, 2002.