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Teaching Kids to Sing
Chapter 7: Resonator and Articulator Mechanics
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Summary

- I. Resonant voice characteristics
 - A. Uniformity of vowels
 - B. Depth and fullness of tone
 - C. Projection or “ring”
 - D. Resonance is the “constructive interference” of sound waves within the vocal tract. It is developed by energy being created from the vocal folds, and a sound wave being produced. It travels through the pharynx and out the mouth, but through the vocal tract, which creates a pitch.
- II. Formants
 - A. A formant is the resonant frequency of the vocal tract
 - B. Changes in formant frequencies are created based on the shape of the vocal tract.
- III. Vowel Production
 - A. F1 and F2 distinguish one vowel from another, and F3 and F4 distinguish one voice from another, producing those vowels.
 - B. A man’s vocal tract is longer than that of a woman and child, so their frequencies are lower.
 - C. Small mouth openings lowers F1 and raises F2
 - D. A more open mouth raises F1 and lowers F2
- IV. Resonator Physiology
 - A. Pharynx and mouth are the major resonators of the voice
 - B. The arched palate technique is the feeling of a raised soft palate, and should not be emphasized with children
 - C. Open throat is when the pharynx is open and relaxed without undue constriction from the swallowing muscles, which are the laryngopharynx and the oropharynx
- V. Tongue
 - A. The back of the tongue should be kept forward and arched high enough to keep it out of the throat
 - B. The tongue should not be grooved or flattened for any vowel, and if this happens, it will diminish resonance
 - C. The four muscles of the tongue are the genioglossus, hyoglossus, styloglossus, and palatoglossus
- VI. Pharynx
 - A. Pop singers use sound amplification, and do not develop depth in the voice. Pop singers use their mouths as the major vocal resonator.

- B. Classical singers use the pharynx to its greatest advantage, producing a tone that is right in resonance and carries without amplification
- C. A depressed larynx, which is lowered artificially lowered, produces a darker, more mature sound.
- D. The position of the larynx when it is relaxed is the normal position needed for singing.
- E. When these two are combined, they increase the power of the voice.
- F. The singer's formant is an extra formant produced in the average male vocal tract at a frequency of about 2800 Hertz.

VII. Developing Resonance

- A. Vowel modification is when pitch gets greater than f2 in females, and f1 in males, the vowels change because of how the frequency of the sung fundamental is higher than the first formant frequency of any vowel. When this happens, the vowel needs to be modified so the word can be understood to those listening to the singer.
- B. The source of vocal vibrato is good breath management and a relaxed throat. Children are able to sing vibrato, and should be the outcome of vocal training that frees the voice, allowing it to pulse naturally.
- C. Tremolo is when vibrato becomes excessively fast. A wobble is a change of amplitude accompanied by a slowing of the vibrato cycle. Children's abdominal muscles have not been weakened by stretching or age, so they are not usually affected by these.

VIII. Articulator Physiology

- A. Diction- the manner in which language is spoken.
- B. Pronunciation- the manner in which a word is spoken
- C. Enunciation- the manner in which a vowel or syllable is spoken
- D. Articulation- the manner in which a consonant is spoken
- E. When enunciating vowels, they should have a deep-set quality, which gives depth and warmth to the voice, and high, forward placement which gives projection and ring.
- F. When articulating consonants, flexibility of the articulators, exaggeration of the consonants, and rapid consonant production.
- G. There are thirteen vowels, and six diphthongs in the International Phonetic Alphabet.
- H. Short vowels are difficult for singers, because of being horizontal and thin in production.
- I. A diphthong is the combination of two vowels, to create one two-part syllable. They should be sung singing the first syllable longer than the second, connecting the sound to one another.
- J. Consonants
 - i. Voiceless plosives: p, t, k, ch
 - ii. Voiced plosives: b, d, g, j
 - iii. Voiceless sibilants: f, s, th, sh
 - iv. Tuned continuants: m and n (sustained), l and r (not sustained)
 - v. Voiced continuants: v, z, th, zh
 - vi. Aspirates: h, wh (voiced)

- K. An open throat is relaxed, and free of constriction by swallowing muscles.
- L. Sung speech is speaking through the language with the blending of the vowels and consonants, and smearing all of the words together. Rhythmic diction is performing every sound in every syllable within metered rhythmic structure of music, diction as text, and diction as a musical medium are all maximized.

Discussion

This chapter gave very excellent and detailed descriptions of the resonator and articulator mechanics. It talked about how vowels and consonants are formed, and the physiology behind resonance. Involving the pharynx and the tongue, the voice resonates sound in an amazing way, and this chapter explains that in depth. It also explained all the articulators that are involved when singing, the vowels and consonants we use in the International Phonetic Alphabet, and pronunciation issues we might face. As a teacher of children, this chapter will be very helpful to me when teaching my students about diction and how the voice resonates, and what sensations they should feel when they are singing and how to develop their voices further. It was interesting to see what parts of the body are used to articulate in singing, and how vibrato is produced. Reading about how vibrato was especially curious to me, because for the longest time I didn't know how to sing with vibrato, and now understand that me not having good breath support was a factor in it. Now building up my breath support and a relaxed throat, has given me the ability to develop vibrato. I can explain this same thing to my students if they are curious about vibrato or singing certain ways, and let them understand when the appropriate time is for them to sing in these ways. Knowing the International Phonetic Alphabet will be beneficial to me when introducing different languages to my students, and making it easier to know how to pronounce them. This chapter will be extremely helpful to me when teaching and keeping in mind the problems anyone can face when singing and pronouncing words, and knowing what sorts of help I can give them to do it correctly.