

DEVELOPMENT OF CHILDREN'S SINGING VOICE

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SUMMARY. The purpose of this paper is to present which are the most common children' singing voice production problems and to demonstrate what role it is the posture, articulation, breathing, movements, imaginations and vocal warm-ups in correction of children's vocal production problems. The research methods used included observations and self-studies. 100 school children participated in this study. This research identified five key vocal production problems: 1. singing exclusively in the chest register; 2. "compressed" singing voice; 3. "too airy" or "veiled" voice; 4. "skinny" voice; 5. out-of-tune singing. The reasons for and the characteristics of several different kinds of vocal production issues and several remedial exercises for them are described in this paper.

Keywords: children, development, singing ability, singing voice, vocal problems

Background

The Kodály Concept of Music Education is a way of developing musical skills and teaching musical concepts beginning in very young children. Its methodology utilizes folk songs, Curwen hand signs, illustrations, movable-do, sol-fa, and rhythm symbols and syllables. It was first introduced in Hungary but is now used in many countries, either alone or in combination with other approaches. The voice is the main musical instrument of this way of teaching. In Kodály's own words, singing connected with movement and action is a much more ancient—and, at the same time—more complex phenomenon than is a simple song. Various rhythm and tonal instruments are also used, including simple xylophones and recorders. Although Kodály instruction is sequential, the materials used in teaching musical concepts vary depending on

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the age of the student. The general sequence may be simplified as: listen – sing – understand – read and write – create.²

We should first learn to love music as human sound and as a life-enriching experience. Kodály addressed the efficacy of teaching singing before teaching an instrument. The voice is the most natural instrument and one which every person possesses. Kodály called singing “the essence” of this concept. Singing is a powerful means of musical expression. What we produce by ourselves is better learned; and there is a stronger feeling of success and accomplishment. Learning through singing should precede instrumental training because it is in the child’s best interest to understand the basics of reading music before beginning the difficult task of learning the technique of an instrument. Singing best develops the inner musical ear. If we ourselves sing often, this provides a deep experience of happiness in music. Through our own musical activities, we learn to know the pulsation, rhythm, and shape of melody. Such enjoyment encourages the study of instruments and listening to other pieces of music as well.³

In the classroom we can encourage singing for enjoyment and at the same time promote correct intonation and proper singing tone. The instructor’s vocal example can significantly improve students’ singing and the development of good vocal intonation. Young voices have less volume, less endurance, and naturally higher ranges than adult voices. The adult instructor must modify his or her voice to accommodate this. A cappella singing will allow children to hear their own voices and enjoy active music making. Kodály addressed the importance of a cappella singing in the music classroom as well as in choral rehearsals and performances. Kodály believed that music should belong to everyone and not just to a musical elite. It is the right of every citizen to be taught the basic elements of music, to be handed the key with which he can enter the locked world of music. To open the ear and heart of millions to serious music is a great thing.⁴

Development of Singing Ability

The foundations of singing development originate in the auditory and affective experiences of the developing foetus during the final months of gestation, particularly in relation to the earliest perception of melodic variations in the mother’s voice. As the mother speaks or sings, the prosodic features of her voice (melody and rhythm) are conveyed to the developing foetus by

² Kodály, Zoltán. Hungarian Music Education. In F. Bónis (Ed.), *The Selected Writings of Zoltán Kodály*. London: Boosey & Hawkes (Original work published 1945) 1974, pp. 152-156.

³ Kodály, Zoltán. Who is a good musician. In F. Bónis (Ed.), *The Selected Writings of Zoltán Kodály*. London: Boosey & Hawkes (Original work published 1953) 1974, pp. 193-196.

⁴ Kodály, Zoltán. Hungarian Music Education. In F. Bónis (Ed.), *The Selected Writings of Zoltán Kodály*. London: Boosey & Hawkes (Original work published 1945) 1974, pp. 152-156.

the sound waves that transfer through her body tissue and that also are reflected from surfaces in her immediate environment. At the same time, the mother's affective state as she speaks, or sings is encoded hormonally in her bloodstream through neuroendocrine activity. This emotional state is believed to be experienced by the foetus relatively concomitantly with the sound of the mother's voice because of an interfacing of the foetal and maternal bloodstreams.⁵ The outcome is an interweaving of acoustic (prosodic/melodic) and emotional experiences pre-birth that are likely to underpin the developing infant's subsequent interactions post-birth with the sounds of the maternal culture. For example, our ability to determine particularly strong emotions in vocal behaviors in speech and singing.^{6 7 8} Is likely to originate in these earliest dual-channel (acoustic-affect) experiences and, arguably, to create a certain bias towards the association of particular vocal timbres with positive and negative feelings. (termed "emotional capital"⁹) Six-month old, for example, exhibit endocrine (cortisol) changes after listening to their mothers singing¹⁰ becoming calmed when upset and more alert when sleepy.

The common roots of singing and speaking are the nonverbal vocalizations of the infant, which are an immediate expression of his-her basic feelings. Parents intuitively tune in to the child's noises to establish communication with the infant. These child-directed vocalizations are called "motherese" and can be seen as a prelinguistic alphabet.¹¹ These vocalized communications represent at the same time prelinguistic and premusical means of expressions.

The earliest vocal behavior is crying. It contains all, of the ingredients of subsequent vocalization, including singing, with variations in intensity and pitch, as well as rhythmic patterning and phrasing.¹² Usually by the age of two months, cooing and vowel-like sounds are already in evidence and being shaped by the maternal culture.¹³ Aspects of "musical babbling" that

⁵ Welch, G. F. Singing as communication. In D. Miell, R. MacDonald & D. J. Hargreaves (Eds.), *Musical Communication*. New York: Oxford University Press. 2005a, pp.239-259.

⁶ Johnstone, T., & Scherer, K.R. Vocal communication of emotion. In M. Lewis & J.M. Haviland-Jones (Eds.), *Handbook of emotions*. New York: Guilford Press. 2000, pp. 220-235.

⁷ Sundberg, J. Emotive transforms. *Phonetica*, 57, 2000, pp. 95-112.

⁸ Nawrot, E.S. The perception of emotional expression in music: evidence from infants, children and adults. *Psychology of Music*, 31(1), 2003, pp. 75-92.

⁹ Welch, G. F. Singing as communication. In D. Miell, R. MacDonald & D. J. Hargreaves (Eds.), *Musical Communication*. New York: Oxford University Press. 2005a, pp. 239-259.

¹⁰ Trehub, S.E. Musical predispositions in infancy. In R. J. Zatorre & I. Peretz (Eds.), *The Biological Foundations of Music* (Vol. 930). New York: Annals of the New York Academy of Sciences. 2001, pp. 1-16.

¹¹ Papousek, H. „Musicality in infancy research: Biological and cultural origins of early musicality". In I. Deliège & J. A. Sloboda (Eds), *Musical beginnings: Origins and development of musical competence*. Oxford: Oxford University Press. 1996, pp. 37-55.

¹² Vihman, M.M. *Phonological development*. Oxford: Blackwell. 1996.

¹³ Ruzza, B., Rocca, F., Boero, D.L., & Lenti, C. Investigating the musical qualities of early infant sounds. In G. Avanzini, C. Faienza, D. Minciocchi, L. Lopez, & M. Majno (Eds.),

contain definite musical features, such as pitch and rhythmic patterns, are also generally apparent from two months onwards.¹⁴ Their incidence and quality appear to be related positively to the amount of time devoted to daily singing behaviors by the mother the greater the amount of maternal singing, the increased likelihood of earlier musical babbling. By the age of three to four months, the infant is, able to imitate his mother's exaggerated prosodic contours that characterize infant-mother interaction.¹⁵ Vocal play emerges around the ages of four to six months.¹⁶ By the age of one year, infants are sufficiently cued into the language of the maternal culture for elements to be reflected in their own vocalizations.

A few authors agree on the fact that most of these melodic contours consist of descending glissando figures after the first 3 or 4 months of life.¹⁷ Papousek¹⁸ describes four different types of melodic contours of vocalization in early childhood (descending, ascending - descending, ascending and complex, and repeated ascending and descending), the frequency of which depends on the age of the infant and the situational context. Descending contours prevail in the first months of life, but later the melodic contours become more varied, and the proportion of other contours increases.

The first year of life is characterized by a shaping of the infant's vocal production through interaction with the acoustic characteristics of maternal culture. Parents, for example, typically employ rich musical properties when interacting with infants: they speak and sing at higher pitch levels, use a wider pitch range, longer pauses, often at a slower rate, and use smooth, simple, but highly modulated intonation contours.^{19 20 21} In general, the first year of life is characterized by increasingly diverse vocal activity. The first

The neurosciences and music (Vol. 999). New York: Annals of the New York Academy of Sciences. 2003, pp. 527-529.

¹⁴ Tafuri, J., & Villa, D. Musical elements in the vocalisations of infants aged 2 to 8 months. *British Journal of Music Education*, 19(1), 2002, pp. 73-88.

¹⁵ Masataka, N. Pitch characteristics of Japanese maternal speech to infants. *Journal of Child Language* 19, 1992, pp. 213-223.

¹⁶ Papousek, M. Intuitive parenting: a hidden source of musical stimulation in infancy. In I. Deliege & J. Sloboda (Eds.), *Musical Beginnings*. Oxford: Oxford University Press. 1996, pp. 88-112.

¹⁷ Fox, D. B. An analysis of the pitch characteristics of infant vocalizations. *Psychomusicology*, 9, 1990, pp. 21-30.

¹⁸ Papousek, M. *Vom ersten Schrei zum ersten Wort. Anfänge der Sprachentwicklung in der vorsprachlichen Kommunikation*. Bern: Huber. 1994.

¹⁹ Thurman, L., & Welch, G.F. (Eds.). *Bodymind and Voice: Foundations of Voice Education*. Revised Edition. Iowa City, Iowa: National Center for Voice and Speech. 2000.

²⁰ Welch, G. F. The musical development and education of young children. In B. Spodek & O. Saracho (Eds.), *Handbook of Research on the Education of Young Children*. Mahwah, N.J.: Lawrence Erlbaum Associates Inc. 2005b, pp. 251-267.

²¹ Welch, G.F. Singing and Vocal Development. In: G. McPherson (Ed.), *The Child as Musician*, New York: Oxford University Press. 2006, pp.311-329.

vocalizations of infancy, with their communication of affective state (discomfort and distress, then also comfort and distress), are expanded to include quasi melodic features (2-4 months), developing vocal control (4-7 months), with vocal pitch behaviors that are directly linked to the prosodic features of the mother tongue. By the end of the first year of life, it becomes possible to separate singing and speaking in the preverbal vocalizations of most children. Children themselves experiment with the voice and seem to try out its range and possibilities in "vocal play".²²

It is possible to understand vocal play in Piagetian terminology as a kind of sensorimotor play. This kind of behavior typically appears between the 12th and the 18th month of life. The two fundamental cognitive processes that underlie vocal play and imitation are assimilation and accommodation.²³ Accommodation takes place when children are trying to adapt their imagination and vocal expression to a given model such as the phrase of a song. Assimilation occurs when children receive new information (a new melody) and integrate it into an already-existing schema.

Another kind of singing was characterized by Dowling²⁴ as an articulation of syllables with vowels that are slightly prolonged and appear on stable pitches. The author also observed a sequential organization of the song, referring to more, or less stabilized tonal patterns. According to Dowling, the first actual singing can be observed between the 6th and the 18th month of life. At first, these glissando-like improvisations on single syllables occupy only a narrow pitch range. Later they turn into recognizable songs, often with a sequential organization of the sounds. Thus, a typical song of an 18-month-old-child consists of a frequently repeated phrase with a steady melodic contour at a continuously changing level of pitch. The song is quite often interrupted by breathing; however, its rhythmic scheme usually remains within the phrase and sometimes even stretches over several phrases. These songs are often derived from the rhythm of spoken language.

In their second year of life, children are, able to sing single short phrases of a song, frequently turning them into spontaneous improvisations and repeating them quite often.²⁵ Microtonal figures in spontaneous singing slowly make way for more accurate intervals, resulting in an overall impression

²² Stadler Elmer, S. *Kinder singen Lieder: Über den Prozess der Kultivierung des vokalen Ausdrucks*. Münster: Waxmann. 2002.

²³ Stadler Elmer, S. *Kinder singen Lieder: Über den Prozess der Kultivierung des vokalen Ausdrucks*. Münster: Waxmann. 2002.

²⁴ Dowling, W. J. The development of music perception and cognition. In D. Deutsch (Ed.), *The Psychology of Music*, 2nd Edition, London: Academic Press. 1999, pp. 603-625.

²⁵ Gembris, H. The development of musical abilities. In: Colwell, R. (Eds): *MENC handbook of musical cognition*, Oxford University Press, New York, 2006.

that is clearly related to the diatonic system.²⁶ Between the ages of 3 and 4, children combine different songs and song fragments into something like a medley. They can repeat songs they hear and increase phrase contour of the presented song by trial and error. Other researchers observed that children could reproduce all, of the lyrics, the main rhythms, also the formal segments of a song starting at the age of 4.²⁷

Singing development in preschool is characterized by an increasing interaction with the sounds of the previously experienced maternal culture. This interaction is reflected in a mosaic of different singing behaviors that are evidenced between the ages of one and five years. They relate to the young child's inquisitive, playful, creative, and spontaneous nature as they engage with and make sense of their "local" musical world. The variety of vocalizations includes: two-year-old' repetition of brief phrases with identifiable rhythmic and melodic contour patterns²⁸, three-year-old' vocal interplay between spontaneous improvisation and selected elements from the dominant song culture, which are termed "potpourri" songs²⁹, and "outline songs"³⁰ in which the nature of the figurative shape of the sung melodic contour (its "schematic" contour) is thought to reflect the current level of the young child's understanding of tonal relationships.³¹

According to Stadler³², the different concurrent theoretical approaches to the development of singing can be categorized into three groups. The first group comprises the speech-dominated theories of sequence. The principal argument here is that songs are learned in a certain order, namely, lyrics, rhythm, melody contour/phrases, precise intervals.^{33 34 35} A second group

²⁶ Moog, H. *The musical experience of the pre-school child*. (trans. C. Clarke). Schott, London, 1976.

²⁷ Shuter-Dyson, R, Gabriel, C. *The psychology of musical ability*. London: Methuen. 1981.

²⁸ Dowling, W. J. The development of music perception and cognition. In D. Deutsch (Ed.), *The Psychology of Music*, 2nd Edition. Academic Press, London, 1999, pp. 603-625.

²⁹ Moog, H. (1976). *The musical experience of the pre-school child*. (trans. C. Clarke). London: Schott.

³⁰ Hargreaves, D.J. The development of artistic and musical competence. In I. Deliège & J. Sloboda (Eds.), *Musical Beginnings*. Oxford: Oxford University Press. 1996, pp. 145-170.

³¹ Davidson, L. Songsinging by young and old: a developmental approach to music. In R. Aiello with J. Sloboda (Eds.), *Musical Perceptions*. New York: Oxford University Press, 1994, pp. 99-130.

³² Stadler, S. *Spiel und Nachahmung: Über die Entwicklung der elementaren musikalischen Aktivitäten*. Aarau: Nepomuk, 2000.

³³ Hargreaves, D. J. *The developmental psychology of music*. Cambridge: Cambridge University Press, 1986.

³⁴ Moog, H. *The musical experience of the pre-school child*. (trans. C. Clarke). London: Schott, 1976.

³⁵ Welch, G.F., White, P. „The developing voice Education and vocal efficiency – A physical perspective”. *Council for Research in Music Education, Bull. no. 119*, 1994, pp. 146-156.

consists of explanations that implicate the order of intervals. Here intervals or successions of notes appear developmentally in a specific and unreversible succession, namely, first the fifth, followed by the third and fourth and then the sixth. This theory assumes innate structures that are supposedly based on the acoustical properties of the harmonic series.³⁶ The third group could be labeled contour theories. Proponents of this approach advance the notion that the learning process begins with the melodic contour and that pitch and tonality follow. Learning to sing is thus assumed to proceed from global to more local features. According to Davidson's theory of contour schemata³⁷, the development of a contour schema starts with a falling third into which the other intervals are placed. The contour schema will then expand with the child's age: at first to a fourth and up to a sixth, which is mastered by the age of around 6 or 7. One author suggests the following course of development.³⁸

1. Early beginnings; vocalizations as the expression of an infant's basic feelings.
2. Shifted imitations; development of rituals and extended vocal play.
3. Imitation without understanding of rules and inventing of arbitrary rules.
4. Generalization of examples; ability to sing larger units.
5. Implicit integration of conventional rules into actions; increasing control of one's own singing.
6. Beginning reflecting on one's own actions, means, symbols and terms; use of notation for the production and reproduction of music.

Children's singing voices are unique in their own way, differing from adult singing voices in terms of vocal timbre, range, and expression. Young voice has less volume, less endurance, and naturally higher ranges than adult voices. Prior to puberty, boys and girls have vocal mechanisms that are similar in size and structure. This results in young boys having a similar vocal range as young girls, and sometimes even sing higher than girls.

Children will have acquired the singing range of an octave with all its steps once they are 6 or 7 years old.³⁹ ⁴⁰ Although they still might miss certain pitches, this does not mean they are unable to recognize the pitches.

³⁶ Metzler, F. Strukturen kindlicher Melodik. *Psychologische Beiträge*, 7, 1962, pp. 218-284.

³⁷ Davidson, L. Songsinging by young and old: a developmental approach to music. In R. Aiello with J. Sloboda (Eds.), *Musical Perceptions*. New York: Oxford University Press, 1994, pp. 99-130.

³⁸ Stadler Elmer, S. *Kinder singen Lieder: Über den Prozess der Kultivierung des vokalen Ausdrucks*. Münster: Waxmann, 2002.

³⁹ Davidson, L. Song singing by young and old: a developmental approach to music. In R. Aiello with J. Sloboda (Eds.), *Musical Perceptions*. New York: Oxford University Press, 1994, pp. 99-130.

⁴⁰ Minkenbergh, H. *Das Musikerleben von Kindern im Alter von fünf bis zehn Jahren*. Frankfurt: Peter Lang, 1991.

The vocal reasons for children's singing problems may be:

- respiratory diseases (acute or chronic respiratory diseases, allergies, asthma, pseudo-croup, persistent coughing)
- the absence of singing practice, which results in no interaction between hearing (auditory) and vocal organs⁴¹
- imitation of bad singing exemplars (e.g., imitating the voice of some pop singers who are singing with pressure, vocal pressing or a nasal, hoarse voice)
- "high breathing" with its consequences of breathing too loudly; taking too little of a breath, or a separate breath for a very short motive; high larynx
- singing in too low of a register
- starting with too aggressive phonation
- a rough, hoarse, and pressed voice⁴²

The harmonious relationship between hearing, brain function, and the development of the vocal organs plays a central role in voice production. If proper coordination is not established between these three areas, there are errors and disturbances in voice production.⁴³

The development of the ability to sing comes to an end around the age of 8 years. Generally, by this time children are, able to sing a song correctly. This ability remains at this level unless music instruction and practice follow. As always, however, a broad range of inter-individual differences are observable. The singing abilities of untrained adults are not much different from those of 8 to 10-years-old children.^{44 45 46}

Until now, no research has been carried out to study: 1) which kinds of children's voice production problems exist, how to group them, what their characteristics are; and 2) what sorts of developmental activities can effectively improve the various types of children's singing voice production problems.

⁴¹ Nitzsche, N. *Die Pflege der Kinder-, und Jugendstimme*. Mainz: Schott, 1970.

⁴² Mohr, A. *Handbuch der Kinderstimmgebung*. Mainz: Schott, 2013.

⁴³ Mohr, A. *Handbuch der Kinderstimmgebung*. Mainz: Schott, 2013.

⁴⁴ Davidson, L. Song singing by young and old: a developmental approach to music. In R. Aiello with J. Sloboda (Eds.), *Musical Perceptions*. New York: Oxford University Press, 1994, pp. 99-130.

⁴⁵ Minkenberg, H. *Das Musikerleben von Kindern im Alter von fünf bis zehn Jahren*. Frankfurt: Peter Lang, 1991.

⁴⁶ Stadler Elmer, S. *Kinder singen Lieder: Über den Prozess der Kultivierung des vokalen Ausdrucks*. Münster: Waxmann, 2002

Aims

The purpose of this paper is to present the different problems of children's vocal production and to demonstrate how we may correct them while developing the quality of children's singing in primary school.

Participants

100 primary school children participated in the observation phase of this study. In Hungary, children attend primary school from 6 through 14 years of age, therefore primary school education lasts for 8 years. Further, 10 primary school children (4th and 5th graders) participated in the self-study and 260 primary school music teachers filled out the questionnaire. Semi-structured interviews were done with 5 proficient music teachers / choral conductors.

Methods

The research methods employed were observations and self-studies. Data were analyzed using qualitative and quantitative analysis protocols.

Aim of the *observations* were:

- to reveal, observe and examine primary school children's vocal production problems.

The observation phase lasted for five years. Observation criteria were the children's posture, breathing, articulation, and vocal sound production while singing.

The longitudinal self-study lasted for 2 years. Aims of the *self-study* phase were:

- to work out how we can correct the children singing voice problems at primary school,
- testing of developmental exercises (self-study)

Observation results

Four key concerns were found across all participants of children's singing voice building problems were observed:

1. singing exclusively in the chest register
2. "compressed" singing voice
3. "too airy" or "veiled" singing voice
4. out of tune singing

Self-study results

Singing exclusively in the chest-register

The technical difference between “head voice” and “chest voice” has to do with how vocal cords vibrate when singing. We use the terms “head” and “chest” to designate where vibrations are most strongly felt when singing. When singing in “head voice”, the vibrations are felt behind your nose and your cheeks. When singing in “chest voice”, vibrations are felt in your throat and chest. When children learn to sing, they normally sing in their chest voice and need help finding their head voice.

The reasons of this vocal problem are isolated chest-voice, full vibration without border vibration.

The following problems seem to exist in posture, breathing, articulation and vocal sound:

Table 1

Problems of singing exclusively in the chest-register and correction of problems

SINGING EXCLUSIVELY IN THE CHEST-REGISTER		
	PROBLEMS	CORRECTIONS OF PROBLEMS
posture	more strained body-posture high elongated head-posture protruded chin, mandible, hoisted shoulders	correction of body-posture correction of head-posture relaxation of mandible
breathing	high breathing	midriff activation, deep breathing
articulation, lips activity	too big mouth opening	articulation exercises singing with feeling of gape and feeling of smile
sound	too loud singing, too low singing, poor high tones, voice cracks in the area of register transition, less elasticity, less flexibility, poor dynamics, less expressive capabilities	“mezza voce”, starting from piano, development of singing voice from head-register glissando exercises, vocal exercises with following vowels: “i”, “e”, (“ü”, “ö”), “o”, “u” and the most conductive consonants: “n”, “m”, “ng”, “s”. softly singing, singing in high register

“Compressed” singing voice

The reasons of this vocal problem are too much breath pressing and blow-pressing blast the vocal cords. There are following problems in posture, in breathing, in articulation, in singing and, in vocal sound.

Table 2

Problems of “compressed” singing voice and correction of problems

“COMPRESSED” SINGING VOICE		
	PROBLEMS	CORRECTIONS OF PROBLEMS
posture	stiff, strained posture cramped neck, shoulders, hands, elbows, and throat strained and tense ventral- wall too raised head high-ranking larynx hoisted shoulders protruded chin, mandible	correction of body-posture correction of head-posture relaxation of mandible relaxation of face-muscles bodily relaxation, small head-movements (yes-no, right-left) going shaking-movements (hand-, and elbow-movements)
breathing	inactive midriff	relaxation of respiration breath is not damed breath flow, stream
articulation, lips activity	stare facial expression	articulation exercises
sound	cramped and pressed singing voice poor head-voices raspy voice too big volume poor flexibility hard tone starting register-divergence little voice register intonation problems	sing softly sing with movements vocal exercises with following vowels: “u”, “o” and the most conductive consonants: “p”, “t”, “k”, “f”, “s”, “m”, “n”; sing with more head-voice sing songs with facile and softly characters

“Too airy”, or “veiled singing voice”

The reasons of this vocal problem are the vocal cords cannot close complete and breathing air escapes audible. There are following problems in posture, in breathing, in articulation, in singing and, in vocal sound:

Table 3

Problems of too “airy” or “veiled” singing voice and correction of problems

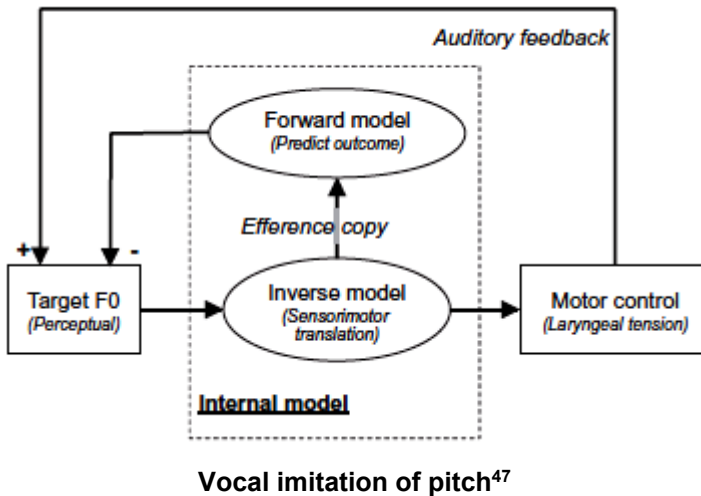
“TOO AIRY” or “VEILED SINGING VOICE”		
	PROBLEMS	CORRECTIONS OF PROBLEMS
posture	shrunk posture	straighten of body posture body-posture activation
breathing	poor breathing support high-breathing	inhale with wondering staccato exercises sing with feeling of inhalation sing with feeling of draw
articulation, lips activity	small lips activity poor mimic poor articulation	mouth opening (long, narrow) chewing movements articulation exercises
sound	too airy veiled voice little voice volume	vocal exercises with following vowels: “i”, “e”, “ü” and the most conductive consonants: “b”, “d”, “g”, “r”; affected, dramatically singing sing with different timbres sing songs with more cheerful or more verve characters

Out of tune singing

The term “tone deafness,” commonly applied to singing off key, suggests that the cause lies in faulty perception and problems lie in production, memory, and/or sensorimotor integration.

Those children are called "out of tune singers" who cannot sing a melody accurately. These children suffer from a lack of functional connections between hearing (auditory), brain processing, and vocal organ activity. In other words, there is a coordination disorder between hearing and singing.

Figure 1



There are three types of out of tune singers:

1. *“singing only in speech range”*
 They can “sing” only in their speech range.
 They cannot perceive where the melody moves.
 They cannot perceive either direction of melody or pitch of tones, so they do not know how to sing.
 They have no experience of how to produce different-pitch of tones with their voice-forming organs. (vocal organs)
2. *“false singing”*
 Bigger pitch changes are often perceived as minor changes and are thus reproduced. For example: perfect fifth interval is perceived major second.
3. *“singing too low”*
 They always sing all too low; they growl.
 Some out of tune singers do not know they are singing falsely until someone tells them this.
 Coordination of the vocal organ and hearing can be taught to most “poor-pitch singers”, but this requires a lot of time, patience, experience, and good teaching approaches.

⁴⁷ Pfordresher, P. Q., & Mantell, J. T. Singing with yourself: Evidence for an inverse modeling account of poor-pitch singing. *Cognitive Psychology*, 70, 2014, pp. 31-57.

Correction of out of tune singing:

- body contact: the direction of the melody, the pitch differences must be manually displayed,
- eye contact: "sing the tone in my eyes!"
- ear training exercises: low, high
- concentration exercises:
Give a pause for the thinking before reproducing, singing the given tone.
Hearing – Thinking – Singing
- Buzzing exercises: from bottom to top (rocket, elevator, uphill-downhill).
- imitation exercises (imitation of animal sounds)
- "Tone-ball" carrying, throwing, transferring.
- Find common tone, pitch.

A single exercise can be used to address multiple vocal and musical considerations. Exercises may address matters of breath, vocal production, vowel formation, and vocal development. Each exercise used for this particular study is labeled with its fundamental purpose, although many functions in several capacities. In two years, all singing problems were remediated. Children's singing development is both varied and multifaceted, and this has considerable implications for teaching and assessing singing as well as other forms of music-making that depend on singing and the quality of singing during the school years.

Conclusions

The body needs to be balanced for students to project a beautiful singing tone. Breathing exercises teach children to inhale and exhale correctly. Vocal warm-up exercises and vocalizations such as encouraging students to vocalize high and low sounds as well as soft and loud sounds help to develop beautiful singing. A healthy childhood singing voice should be light, smaller than adults' voice, in the nature of the head-register, shiny, sonorous, soaring, floaty, mobile, not veiled nor sophisticated, without pressing, not too loud, soft in the chest register. Well-planned and efficiently executed vocal development activities and exercises are essential for developing good singing habits. Because the vocal cords constitute an extremely sensitive organ, they need special care and training in order, to produce healthy singing attributes.

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