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Levels and Indicators for Assessment of Singing Voice of 6–8 Year-old Children

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Abstract. Clearly missing are studies that analyse 6–8 year-old children's singing and at the basis of which are concepts that describe aspects of breathing, intonation and articulation and their simultaneous combination. In other words, this research domain needs an emphasis on the structural aspects of singing. The aim of the research was to elaborate levels and indicators for the assessment of singing voice of 6–8 year-old children, according to four dimensions: expression, breathing, intonation, and articulation. On the basis of the analysis of conceptions of the development of coordination between musical hearing and the vocal apparatus offered by several expertise authors, the present study includes elaborated assessment levels and indicators of singing voice of 6–8 year-old children according to four dimensions: expression, breathing, intonation, articulation.

Keywords: *assessment levels and indicators, singing voice, 6–8 year-old children.*

Introduction

Exposure to music is one of the most important ways how to assure the aesthetic education of a child. Singing voice can be compared to a unique musical instrument, which can be used by a child from an early age. Rutkowski, Gluschank & Chuang (2005) indicated that singing is a musical expression common to most cultures; however, many children's singing does not seem to come naturally. A lot of children have difficulties in singing (Rutkowski & Chen-Hafteck, 2001; Rutkowski, Chen-Hafteck & Gluschankof,

2002). An expressive performance of a song helps to experience its contents deeper and brighter, as well as induce aesthetic attitude towards music and the surrounding reality. During singing, musical abilities are being successfully formed and developed: emotional sensitivity to music, tonal memory, musical and aural perception, and the sense of rhythm (Teplov, 1947). In singing, the child's musical needs are satisfied, as he/she can perform known and preferable songs at his/her wish and at any time.

Singing has a profound effect on the emotional sphere and on the child's mental development; it improves his/her basic mental functions and is directly related to his/her physiological development (Davidova, Zavadska, Shershnova, Rauduvaite, Chuang, 2015).

It is necessary to find a definition of singing and criteria to distinguish pre-musical or musical vocalisation from preverbal or speaking-like ones or from intonation. Often the analysis of child vocalisation is done by mere listening and by conceptually vague classifications or ratings. What are the criteria for categorizing a vocalisation as musical, pre-musical, verbal or preverbal? Detailed and general reviews of research on singing development and on conceptual and methodological shortcomings are given in other places (Stadler Elmer, 1996, 2002). Research on singing (including early singing) can be characterized as a rich and fuzzy domain still lacking systematic studies or approaches, especially in children's singing voice assessment.

It is necessary to find levels and indicators to distinguish pre-musical or musical vocalisation from preverbal or speaking-like ones or from intonation. Often the analysis of child vocalisation is done by mere listening and by conceptually vague classifications or ratings. *What are the levels and indicators for the assessment of singing voice of children?*

As a result of the diagnostic study in the frames of the international project "The Coordination between Musical Hearing and the Vocal Apparatus of 6–8 Year-Old Children during the Process of Singing: Comparative study in Latvia, Lithuania and Taiwan" (Rauduvaite, Lasauskiene, Abramauskiene, Davidova & Chuang, 2016), the assessment dimensions and criteria of the vocal apparatus for 6–8 year-old children during the process of singing were defined:

- Expression:
  - facial expression,
  - bodily expression,
  - emotional expression;
- Breathing:
  - posture,
  - high & deep breath,
  - diaphragm;
- Intonation:
  - sense of mode,
  - pitch accuracy,
  - register: upper, middle, & low registers;

- Articulation:
  - diction,
  - ways of vocal making (*legato, staccato*),
  - sense of rhythm.

The object of the research: levels and indicators for the assessment of singing voice of children.

The aim of the research is to elaborate levels and indicators for the assessment of singing voice of 6–8 year-old children, according to four dimensions: expression, breathing, intonation, and articulation.

Research methodology –scientific analysis of literature.

Levels and indicators of singing voice of 6–8 year-old children according to four dimensions

In order to elaborate levels and indicators for the assessment of singing voice of 6–8 year-old children, in our research we have thoroughly studied the peculiarities of each of the four concerned dimensions.

Expression. The term "expressive singing" is regarded in different areas: in the study of art, linguistics, in psycholinguistics, psychology, and is interpreted by researchers differently. In music, this is the term which is used to explain "feeling" in voice. The expressive side of singing is diversified and is understood as an active and practical acquirement of the different sides of music language (Vennard, 1968; Miller, 2004). The following means of sound expressiveness stand out: strength of voice, intonation, timbre, melody, pauses, logical stress. Emotional expressiveness, which is manifested in expressing happiness, sadness, surprise and annoyance, can also be attributed to the means of sound expressiveness.

Expressiveness in singing is the emotional sensitivity to the composition being performed, the ability of the voice to express musical thoughts. Emotional expressiveness is the basic function of intonation. Singing can be different, both according to its beauty and strength of the sound, and according to its impact; in other words – according to its expressiveness. Thus, music is the main element of expressiveness, while lyrics create a uniting mood.

Musical and vocal expressiveness requires preliminary and thoughtful analysis of the whole composition to be performed. Expressiveness is achieved by means of many components: composition of a string of notes (weak and strong beats create a dynamic fundament for the string of notes); rhythmical image of the melody; intonation (intonation of every melody has its own culminating moment, which emphasises the sense bearing side of the string of notes); tempo (determines the emotional nature of the composition) (Campbell, 2008; Stulova, 2015).

Primary school age is a favourable period for forming the basic components of the means of expressiveness in singing. All means of expressiveness interrelate and complement one another. It is necessary to start forming expressiveness as early as possible and to continue it throughout the whole school period. The development of sound expressiveness is a necessary prerequisite for forming an intelligent and versatile, harmonious personality. Expressive singing is able to attract the attention of a listener, promotes communication, and creates an atmosphere of success, which is important for younger school children.

Drawing analogy with the expressiveness in reading (Yegorov, 2006), it is possible to single out three stages of expressiveness in singing:

- singing is convincing enough, although it lacks any expressiveness;
- singing has an element of expressiveness;
- artistic – expressive singing (Davidova, Zavadska & Chuang, 2016).

During singing, children freely perform the analysis and synthesis of sounds, on condition that their ability to hear sounds is developed. Continuous and systematic practicing enhances strengthening of the link between sounds and their reproduction, and gradually this link obtains an automatic nature.

On the basis of the analysis of above mentioned conceptions, the authors elaborated levels and indicators according to the dimension "Expression" (see Table 1).

Breathing. Breathing is the fundament of singing: breath training and support are essential to a good singing technique (Emmons, 1988; Sundberg 1993). For a correct breathing in singing, it is important that children have the correct position of their body: a straight back and well bound lumbar part of the spine, as the diaphragm, is attached to the upper lumbar vertebra. The lumbar part of the spine is the support for the diaphragm when it is contracted: thus it is important that the lumbar vertebras are well fixed. The most complex task of breathing for singing is a controlled and regular exhalation, which is achieved by breathing from the diaphragm, as it is the diaphragm which helps to regulate and distribute the exhaled flow of air and to maintain the volume of the thorax for singing.

Breathing and voice are interrelated. During singing, the respiratory muscles work actively and train their tonus, while during a normal breathing contraction of these muscles are much weaker. It is very important to teach a child to correctly control his/her own respiratory muscles, diaphragm, as well as to relax and contract not only those muscles, which take part in the process of sound formation (abdomen muscles, diaphragm, jaws, neck, tongue muscles, muscles of under-jaw, etc. (see Table 2)) and sound maintaining, but also the muscles of the whole corpus (Buchel, 2005).

Table 1

Levels and Indicators for the Assessment of Singing Voice of 6–8 Year-Old Children According to the Dimension "Expression"

Dimension	Criterion	Level	Indicators
Expression	Facial expression	Low	Static, indifferent facial expression; No eye-contact with the listeners.
		Average	Sometimes during singing there are some non-verbal expressions (a smile or a serious facial expression).
		High	By means of mimics the performer conveys the nature of the composition.
	Bodily expression	Low	Stiff body; Movements of the body do not conform to the rhythm of music; Movements of the body disagree with the metrical accents.
		Average	Movements of the body conform to the nature of the rhythmical image; Movements of the body conform to the metrical accents in music.
		High	With the help of movements of the body the nature of music is expressed freely; Active and moving posture during performance of the musical composition.
	Emotional expression	Low	Performance does not reflect the emotional nature of the music; Automatic performance.
		Average	Mime reflects the emotional contents of the composition being performed; Understanding of some of the elements of emotional contents.
		High	Understands what is being performed in detail and conveys the emotional contents of the composition.

On the basis of the analysis of above mentioned conceptions, the authors elaborated levels and indicators according to the dimension "Breathing" (see Table 2).

Table 2

Levels and Indicators for the Assessment of Singing Voice of 6–8 Year-Old Children According to the Dimension "Breathing"

Dimension	Criteria	Level	Indicators
Breathing	Posture	Low	Wrong posture: sunken breast, which hampers the work of intercostal muscle while breathing; bent back, which hampers free work of the vocal apparatus.
		Average	Spine is relatively straightened; Some parts of the body are tense (abdominal muscles).
		High	Performer's spine is in the stage of physical self-awareness and relaxation.
	High & deep breath	Low	Lumbar vertebrae are not free because of compressing; Squeezed reflex respiration.
		Average	Reflex link with respiration and emotional impulses is limited.
		High	Reflex respiration is free and deep.
	Diaphragm	Low	Muscles of thorax, shoulder and face are strained and tense; Shallow "clavicular" breathing; Abdominal area is not free from straining.
		Average	Relatively smooth distribution of breathing on string of notes; Not always the performer can maintain breathing till the end of the string of notes.
		High	Controlled and regular exhale; Active and free work of muscles of respiration.

Intonation. In the process of singing: a) child's attitude towards singing becomes apparent, b) musical and personality development of children is put into effect. Singing is a complex sound making process, in which coordination between hearing and voice is of great importance, that is, the interaction between singing intonation (non-false sounding) and auditory, muscular sensations.

In the process of singing, work on clear intonation, diction and general expressiveness of performance is important. Only the junior school age is the most favourable time for the development of children's basic singing skills (Zavadska, Davidova, Rauduvaite, 2016). Distinguish two major elements of control in the singing process: positional formation of the height of a resonating sound; breathing component of the formation of a singing sound.

Children intone sounds by adjusting the pitch performed to the pitch predefined. The child finds the desired pitch and then reproduces the melody, but rather unconsciously, physiologically feeling the unison with the predefined pitches of the melody. The child's

brain forms a link between the ends of the motor and auditory analysers. At first, this link is very weak. It is only maintained by repeating several times the adjustment of the child's singing voice to the given pitch of a melody (McKernon, 1979).

Within the framework of the present research, the indicators of three levels according to the dimension *Intonation* were elaborated (see Table 3).

Articulation. Articulation is the process by which the joint product of the vibrator and the resonators is shaped into recognizable speech sounds through the muscular adjustments and movements of the speech organs (Greene & Mathieson, 2001). The articulation apparatus includes also the oral cavity (cheeks, lips, teeth, tongue, jaws, and hard palate), pharynx and larynx. The first requirement for them to work is being natural and active. Active nature can be achieved by means of decreasing different tensions and by stimulating a clear performance of different muscles and organs (Peng, 2005). All active pronouncing organs take part in pronunciation of any sound of speech. The position of these organs, which is necessary to form a sound, creates its articulation, namely, separation of sounds and precision in their sounding.

Singing articulation is different from the articulation of normal speech: in singing sound extraction the articulation apparatus is many times more active in pronouncing both vowels and consonants, since in case of speech the external articulation organs (lips, under jaw) are working, while in singing also the internal organs are involved (tongue, larynx, soft palate and the others) (McAllister, Sederholm, Sundberg & Gramming, 1994; Titze, 2000; McAllister, Sjölande, 2013).

The differentiating peculiarities of the sounds of speech (vowels and consonants), which are responsible for diction, in singing are formed in the oral cavity, while the smooth 'vocality' of consonants is created by the larynx and the pharynx. Accordingly, the importance of the oral cavity in vocal diction increases; vocal diction depends on an active and clear performance of the organs of the oral cavity.

Diction is the most important means of artistic expressiveness for revealing the musical image. The performance of the organs of the oral cavity should be organised so that their fast and intense movements, especially those of the tongue, do not interfere with the singing adjustment of the larynx. In singing, articulation affects not only the precision of diction, but also the purity of singing (Vennard, 1968).

Table 3

Levels and Indicators for the Assessment of Singing Voice of 6–8 Year-Old Children According to the Dimension "Intonation"

Dimension	Criteria	Level	Indicators
Intonation	Sense of mode	Low	There is almost no sense of mode: the child is simply reciting the lyrics according to the rhythm; Intoning of one or two sounds of the melody by relying on key-note.
		Average	Only the general direction of the melody is intoned; There is a sense of mode in the intoned melody (major and minor third).
		High	Sense of mode is linked to the figurative content of the melody; The performer distinguishes between the modal functions of the sounds of melody, their stability and instability, and attraction to each other.
	Pitch accuracy	Low	The child sings, intones, but cannot reproduce the sounds correctly; There is no coordination between the hearing and the voice, the child cannot control his/her vocal apparatus.
		Average	Against the background of the reproduction of the main direction of the melody, there is quite a clear pitch intonation of separate of its fragments.
		High	The whole melody is clearly intoned during singing with the accompaniment; The child relatively correctly intones the melody image without the accompaniment.
	Register: upper, middle, & low registers	Low	The diapason of the voice is 2-3 tones within the middle and the high register; The voice is distinct in a weak level of modulation according to height.
		Average	Diapason of the voice reaches 4-6 tones; The child uses a falsetto register.
		High	Diapason of the voice reaches seventh (Re of the 1st octave – Do of the 2nd octave); The child uses not only falsetto but also chest register.

On the basis of the analysis of above mentioned conceptions, the authors elaborated levels and indicators according to the dimension "Articulation" (see Table 4).

Table 4

Levels and Indicators for the Assessment of Singing Voice of 6–8 Year-Old Children According to the Dimension "Articulation"

Dimension	Criteria	Level	Indicators
Articulation	Diction	Low	Imprecise pronunciation of round vowels and consonants in moderate, in terms of tempo, vocal works; Lack of activity of the articulation apparatus.
		Average	Precise pronunciation of separate vowels and consonants in moderate, in terms of tempo, vocal works; There is some activity in the articulation apparatus.
		High	Pronunciation of words in the process of singing is clear and precise enough; Articulation apparatus is active and free.
	Ways of vocal making (legato, staccato)	Low	Weak sound attack; In singing there is no natural transfer of marginal closure of vocal cords.
		Average	Relatively precise reproduction of the given pitch of some of the tones while singing in *staccato*; While singing in *legato* there are some tremors and attacks when moving to near-by notes.
		High	Precise sound attack; Skills of singing in *legato* and *staccato* are well formed.
	Sense of rhythm	Low	Wrong accentuation in singing; Wrong managing of shades of meaning of the lyrics in singing; Beat and rhythm pulsation is disturbed.
		Average	Relatively precise accentuation; Precise rhythmical pulsation in a relatively slow tempo.
		High	Singing corresponds the rhythmical nature of the vocal work; Exact perception of the rhythmical image of the melody.

It is important to use elaborated levels and indicators according to the dimensions "Expression", "Breathing", "Intonation" and "Articulation" as a whole systemic model in the process of assessment of singing voice of 6–8 year-old children. The formation and development of children's technical vocal skills should be carried out together with the emotional subtexts and artistic expressiveness. Children who cannot handle their voice (technical skills) are helpless in performing vocal works.

Conclusion

The development of the child's voice implies qualitative and quantitative changes in both the state of the vocal apparatus and the principal character traits of sounding; it implies also the development of specific musical abilities. In the process of singing voice assessment, where interaction between the teacher and the learner is necessary, the usage of the elaborated systemic model of levels and indicators according corresponding to the four dimensions contributes to defining the achievements and problems in developing child's vocal apparatus, as well as determining the strategy for a further development of coordination between 6-8 year-old children's vocal apparatus and their musical hearing.

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6–8 metų amžiaus vaikų dainuojamojo balso vertinimo lygiai ir rodikliai

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Santrauka

Vis dar trūksta tyrimų, kurie analizuoja 6–8 metų vaikų dainavimą. Dainuojamasis balsas gali būti lyginamas su unikaliu muzikos instrumentu, kurį vaikas gali naudoti nuo pat ankstyvo amžiaus. Dainavimo metu sėkmingai formuojami ir tobulinami muzikiniai gebėjimai, kartu tenkinami vaiko muzikiniai poreikiai. Ypatingas dėmesys į vaiko balso vystymąsi turėtų būti kreipiamas ankstyvajame amžiuje (6–8 metai), kadangi dainavimas yra vienas iš balso vystymosi ir gerinimo būdų.

Tyrimo tikslas – parengti 6–8 metų vaikų dainuojamojo balso vertinimo lygius ir rodiklius pagal keturias dimensijas: išraišką, kvėpavimą, intonaciją ir artikuliaciją. Šiame straipsnyje nagrinėjami 6–8 metų vaikų dainuojamojo balso vertinimo lygiai ir rodikliai pagal minėtas dimensijas.

Dainuojamojo balso vertinimo procese, kur būtina mokytojo ir mokinio sąveika, naudojamas nuodugniai parengtas sisteminis lygių ir rodiklių modelis pagal atitinkamus keturis aspektus: išraišką, kvėpavimą, intonaciją ir artikuliaciją. Tai padeda apibrėžti pasiekimus ir problemas, susijusias su vaiko vokalinio aparato kūrimu, taip pat tai nulemia strategiją, skirtą tolesniam 6–8 metų vaikų vokalinio aparato plėtojimui ir jų muzikinės klausos suderinamumui.

Esminiai žodžiai: *vertinimo lygiai ir rodikliai, dainuojamasis balsas, 6–8 metų vaikai.*

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