STUDIA UBB MUSICA, LXII, 2, 2017 (p. 133 – 139)
(RECOMMENDED CITATION)
DOI:10.24193/subbmusica.2017.2.10

# THE ART OF PHONATION; HOW TO PRODUCE A HIGH-QUALITY VOICE EMISSION

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**SUMMARY.** We communicate through vibrations, through sounds, we are vibration. The art of phonation is the art of the harmonic vibration of the spirit with matter. The art of singing materializes, through sounds, the spiritual energy. It makes that connection between spirit and matter. The singing voice transforms the psychophysical energy of the human body into energy of another type, spiritual. The art of phonation is one of the most difficult and a complex activity, as everything is produced within the human body. Various psychological and organic changes are produced, namely exchanges of energy, whose result is *sound*.

**Keywords:** art of phonation, vocal emission, sound, vibration, singing.

We live in a world of vibrations. Everything that surrounds us has a vibrational level and every object or being have their own vibrational frequency, depending on the degree of elevation. Even planet Earth has its own vibrational level, called the Schumann resonances (named after physicist *Winfried Otto Schumann*, who introduced this notion).

The level of vibration largely depends on the speed of movement, which lately has increased enormously. With the increase of the vibrational level of the Earth, the vibration of every being on the planet also raises.
We are vibration, we communicate through vibrations, through sounds.

Talking about phonation as an art, and particularly about *singing, I* would like to emphasize the fact that these are a spiritual vibration, elevated through the human body.

The art of singing makes that connection between spirit and matter, or, better yet, it materializes the spiritual energy through sounds. The singing voice transforms the psychophysical energy of the human body into energy of another type, a spiritual one. In the human body, this energy originates in the heart and it spreads around in all directions, overwhelming the entire human being. As it is managed by the brain, it passes through the vocal cords' area,

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where the primary sound is formed and it is projected towards the exterior (in the process of phonation) through the acoustic body (the resonators) where it is enriched with harmonics, and thus the *vocal sound* is formed.

In order to understand and own the art of phonation, it is not enough to have healthy body and strong vocal cords – one must evolve cognitively and spiritually, having a healthy lifestyle and try to live the truth from one's heart. The good condition of the phonatory apparatus shall develop at the same time with the spiritual development, thus reflecting directly on the quality of the vocal performance.

Becoming a singer is no easy task, one must be very persistent and tenacious in one's study and, consequently, the physical condition of the vocal apparatus shall improve through practice. The studying process, if made regularly, shall turn into a continuous research of the development of one's own phonatory apparatus in relationship with the mental state. This way, we will get to know our capabilities as well as possible.

Sung and spoken sounds are produced in the phonatory apparatus, which is made up of the totality of components of the respiratory system, resonators, as well as of the complex system of nervous adjustment of respiration and phonation.

A sound is perceived not only through hearing, but through the entire nervous system, as it is a universal “vehicle” of energy: a complex of energies unleashed from the psychophysical body in its full function of energetic transformer, of creator of genuine creatitude."[2]

The fundamental role in the production of a high-quality vocal emission is played by the resonators, especially the larynx, the oral cavity and the paranasal sinuses. Thanks to them, the primary sound (also called *fundamental pitch* or *tone*) has all the favourable conditions for further development and enrichment with harmonics. Being accompanied by harmonics, the sound becomes full, consistent, beautiful, full of vibrancy, power, tone colour and personality. Harmonics are nothing else but partial pitches with segmental vibrations, of lower intensities and of frequencies higher than the fundamental pitch. These are originated once the fundamental pitch enters the resonating cavities. By vibrating on its entire length, the fundamental pitch produces those harmonics with segmental vibrations. The voices whose harmonics span between 2,500-3,500 Hz in the frequency band are very penetrating. The resonators beautify the sound and the voice acquires its own tone colour (timbre).

Vocal timbre differs from person to person, as it is formed in the resonating chamber (vocal sound box) and the cavities that it passes through, just as the resonating chamber differs in structure and volume from one individual to another.

The process of sending and placing the pitches in the vocal resonators is called *"voice projection".*

The beauty, vibrancy and power of the sound depend on the way in which the voice or the sound is projected in the resonators. The better the voice is projected, the lower the effort made in the process of voice emission and the louder, fuller and more timbral – the sound. The quality of voice projection depends largely on the singer's quality of the breathing technique. This vital function of the human body is of fundamental importance, as one cannot sing without breathing.

For a correct voice projection and an effortless voice emission, the singer must possess a very good breathing technique. Here is an example that can help us understand better why it is very important for a singer to have a very good breathing technique: Let us imagine that we are in front of a little artesian well, whose water pressure we can control, through a water tap. If we open the water tap just a little, we get a low water pressure and if we open the tap more, the pressure will rise. Furthermore, let us imagine that we open the tap just a little bit, in order to have a low water pressure and, then, we put a light ball, inflated with air, above the water jet. The water will keep the ball at a low level. Once we open the tap more, the water pressure will rise and the water jet will soar, raising the ball.

The water in our example is the air that we breathe out in the process of phonation and the ball is the fundamental tone that is to be placed in the resonators.

The better the breathing technique, the better projected the fundamental tone will be and the easier the emission process. Moreover, the acoustic result will be much ampler, more timbral and pleasant, thus acquiring a high-quality voice emission.

When emitting various sounds, the oral cavity takes different shapes under the action of the mandible, orofacial and tongue muscles. The mandible muscles enlarge or diminish the phonation tube vertically and the orofacial muscles enlarge or diminish it transversely and sagittal. The phonation tube narrows or dilates itself in the process of phonation, depending on the vowel or consonant that is being emitted. The widest space of the phonation tube is created when uttering or singing the vowel sound **/ɑ:/** and the narrowest – in consonant ***"s".*** For a good-quality voice emission, it is recommended that the space of opening of the phonation tube be larger during singing, than during speaking. To obtain this, it is recommended that the position of the tongue during singing be a little concave. This perfects the shape of the phonation tube through various positions that the tongue takes, depending on the vowel or consonant that is being uttered or sung. The tongue is the sensitive spot in the art of phonation. Unless we know how to use it

correctly, it becomes an impediment in the process of phonation. Being supported by nine muscles, the tongue operates a certain muscle for any movement it makes. It serves several functions, namely: mastication, swallowing, speaking and singing. In the phonation process, it must perform the exact opposite of what it does during swallowing. It must relieve the larynx and the guttural pharynx, in cases of great effort, giving room for passage to the air column. The tongue is the most important muscle to the circuit of the sound column. In the phonation process, the bottom of the throat must always be cleared, in order to obtain a wider space for vibration. The tongue is the one that conducts this process; this is why it can be of great use to those who know how to use it properly. For those who don't, it is a great impediment.

Consequently, the position of the tongue during singing must be a little concave on its entire length. It's only the tip of the tongue that changes its position, depending on the words being uttered in the process of articulation of the literary text.

Talking about voice emission and the position of the tongue during singing, I would like to mention another pretty important aspect, which is the position of the larynx. In its turn, the larynx must be completely relaxed and the consecutive performance of various vowel sounds or pitches should not modify the free position of the larynx, keeping it in its normal state (with no changes of position, upwards or downwards).

The emission of the various vowel sounds entails a modification of the lips' position, of the degree of incisal separation of the maxillary bones and of the length of the laryngeal oral tube.

All these changes depend on the vowel sound to be emitted. The vowels sounds /ū/ and /ō/*,* which produce long vibrations, shall have a wide laryngeal-oral opening. The vowel sound /ɑ:/*,* which produces medium vibrations, shall have an average laryngeal-oral opening and vowel sounds /ē/ ([i:] or [i]) and *"eh"* [ɛ] *,* (as in “bed”), which produce short vibrations, shall have a short laryngeal-oral opening.

The position of the lips in the voice emission of vowel sound /ɑ:/ is a little stretched, in vowel sound */ō/* - the lips stretch more, maintaining the opening that they have when uttering /ɑ:/. In vowel sound /ū/, the lips stretch more and close a little more. The sound emission in vowels” eh*”* [ɛ] and */ē/ [i:]* is more difficult, because the position of the tongue and soft palate, as well as the degree of incisal separation during the spoken pronunciation of the two vowels do not correspond with the ones during singing. In the *spoken* pronunciation of vowels” eh*”* [ɛ] and */ē/ [i:]*, the tip of the tongue must be placed forward, the middle part must be curved upwards and the commissures of lips must be drawn backwards. In the

emission of these vowel sounds during *singing*, however, the tongue position must be almost identical with the one in /ɑ:/, with a rather small change of the tip of the tongue's position (almost imperceptible, but very important), in order to articulate and differentiate these sounds.

Often, when we attend vocal training masterclasses, we hear the statement: "*you should sing like you speak*". This refers to applying - during singing – the same state of ease and naturalness that we experience when we speak. After this is ensured, we can then apply the vocal training techniques. All these techniques can be learnt and the difficulties solved with the help of the so-called *warm-ups* (exercises of vocal technique).

A pretty important chapter in the art of phonation is represented by the issue of working on the correct and good-quality emission of consonants accompanied by vowels. Once the correct voice projection of vowels is accomplished, both in the order of length of vibration and backwards, one can then start studying the emission of consonants accompanied by vowels. In this chapter, special attention must be paid to maintaining the voice projection of sounds in the superior resonators of the head, as some consonants, because of their formation in various places of the oral cavity, have the tendency to pull the sound back from the resonators.

In his book, "*The Medical Reasoning in Dental Practice",* Univ. Prof. Eugen Costa, Doctor of Science, classified consonants in a few groups, depending on the place where the narrowing of the oral cavity is produced. In its turn, each group comprises three types of consonants, according to the duration of their emission, namely: *explosive, continuous and vibrant* or *interrupted*. Here is the classification of the groups:

* *Labial consonants* - the consonants uttered with the lips (p, b, m);
* *Lingual consonants* - the consonants uttered with the tongue (d, l, t, n, s, j);
* *Guttural consonants* - the consonants formed when the posterior side of the tongue touches the soft palate (c, g, k).

In order to learn how to properly emit consonants accompanied by vowels, most vocal coaches recommend that we should start with a warm-up of the superior resonators of the head. This is done by emitting a pitch with the mouth closed, on the consonant "*m"* (humming warm-up). All the head resonators participate naturally and fully in the emission of the "*m" and "n"* sounds, this is why the humming vocal exercise helps us to warm up the superior resonators and, also, to project the sound correctly.

From the humming warm-ups, we can then shift to the next exercise, namely the singing of the same pitch on syllables: *ma(m)- me(m)-*

*mi(m)- mo(m)- mu(m).* After each syllable written, I have added the letter "*m"*, which means that the opening of the sound from the consonant "*m"* towards the following vowel is not a long one, and one must return immediately to the humming, in order to maintain the sound in the superior head resonators (thus, the sound is projected much better and safer).

At this point, I would like to talk about a pretty effective exercise, which is used by many vocal coaches. This year, I have participated with my students in a few international singing competitions and I have had the opportunity to attend a few rehearsals of the teachers with their students, before entering the competition. The vocal warm-ups were very different. What came as a nice surprise was the fact that all the teachers used the same type of exercises (that I want to elaborate on, in the next lines) in order to solve the issue of consonants' emission and of diction. These are the exercises for a high-quality emission of consonants and for diction proposed by the former prime baritone of the Romanian National Opera in Cluj-Napoca, maestro Marin-Marius Truiculescu in his book, *"The Professional Vocal Singing".*

The"key exercise" indicated by the great maestro is the following: On a pitch, one must sing the next following succession of syllables *"mra- mre- mri- mro- mru- mra- mră- mrâ"*. Consonant "*m"* introduces the sound in the superior resonators naturally and consonant "*r"* is used here in order to engage the tongue, as well as to ensure the diction. This exercise is to be made with all consonants of the alphabet, but before shifting to the next consonant, one must sing the "key exercise", every time. This return to the initial exercise, every time, must be made in order to fix the sound in the resonators, every time, in a natural way, by means of the consonant "*m"* and to follow the route of its fixation. In this same chapter, the maestro also gives various solutions to the issue of solving the emission of the most difficult consonants to project, such as: *c, k, p, t. ("Professional Vocal Singing", page166).*

For a correct and high-quality emission, a special factor is the vocal and mental hygiene. The vocal cords need a lot of rest and a proper and healthy nutrition.

The vocal apparatus differs from person to person; this is why every singer should know very well their own vocal apparatus and its resistance, in order not to overwork it. The art of phonation is one of the most difficult and complex activities, as everything are produced inside the human body. Various psychological and organic changes are produced, namely exchanges of energy, whose result is *sound.*

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