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DO WE REALIZE THE IMPORTANCE OF VOCAL TECHNIQUE IN ADOLESCENCE?

Abstract

If we want a person's behaviors to include participation in singing and choral music, we need to provide students with the knowledge and skills to sing successfully through the voice change in adolescence and into adulthood. There is increasing evidence that adolescents who view themselves as unsuccessful singers will only rarely seek choral music experiences in adulthood. The purpose of the study was to determine whether teachers are aware of the importance of vocal technique during adolescence. The results of the empirical research, which included 29 music teachers of Slovenian elementary schools from different Slovenian regions who taught in school year 2014/2015, reveal that more than half of the teachers participating in the research do not devote enough time to prepare adolescent singers before singing and only a good tenth of them consider individual characteristics of singers. Research suggests that institutions that offer training to future music teachers should devote more attention to educate them to be more sensitive concerning the needs and the abilities of adolescent voice. A basic approach for the work with adolescent voices is presented.

Key words: adolescence, voice change, vocal exercises, warm-ups, pedagogical approaches, research

Izvleček

Ali se zavedamo pomena vokalne tehnike v adolescenci?

Če ima mladostnik željo po vključevanju v aktivno petje in zborovsko glasbo, mu moramo zagotoviti znanje in spretnosti za uspešno petje v obdobju glasovnih sprememb, ki se pojavijo v adolescenci. Vedno več je dokazov, da se bodo mladostniki, ki se doživljajo kot neuspešni pevci, v odraslosti le redko vključili v zборе. Namen študije je bil ugotoviti, ali se učitelji zavedajo pomena vokalne tehnike v času adolescence. Rezultati empirične raziskave, ki je vključevala 29 osnovnošolskih učiteljev glasbene umetnosti iz različnih slovenskih regij, ki so predmet poučevali v šolskem letu 2014/2015, kažejo, da več kot polovica sodelujočih učiteljev ne posveča dovolj časa za pripravo mladostnikov na petje. Le dobra desetina upošteva individualne glasovne značilnosti pevcev. Raziskava kaže, da bi morale institucije, na katerih se usposablajo bodoči učitelji glasbe, posvetiti večjo pozornost njihovem izobraževanju v smeri, da bi bili občutljivejši glede potreb adolescentskega glasu in individualnih glasovnih značilnosti v tem obdobju. V članku so predstavljeni osnovni pristopi dela z razvijajočimi se glasovi.

Ključne besede: adolescenca, sprememba glasu, vokalne vaje, upevalne vaje, pedagoški pristopi, raziskava

Introduction

Adolescence is a critical stage of development pedagogically, physiologically, and psychologically (McPherson, 2006). Body experience a lot of changes, but one of the most noticeable changes occurs is the development of the voice. What is going on?

Puberty begins between 10 and 14 years and is associated with increasing levels of hormones (testosterone in boys and estrogen in girls). Accelerating growth of the larynx is most pronounced in boys. The size of the entire laryngeal skeleton is in boys after puberty greater. In boys, vocal cords increase in both length and thickness. The resonating tube and lung function increase, which also affects the voice. The development of the vocal cords during puberty is accompanied by the growth of all structures of the throat (Hočevár Boltežar, 2008).

During voice change or vocal mutation adolescent voice may go through insecurity of pitch, main fundamental frequency lowers, vocal range is limited, voice cracks and register "breaks" can appear, increased breathiness or hoarseness, huskiness in voice quality may occur, singing can become uncomfortable for the singer (Gackle, 1991). Before voice change begins (before puberty) both boys and girls have similar vocal pitch, during puberty the male voice lowers for nearly an octave, while female voice lowers for a few notes (3-4 semitones; Gackle, 1991).

Lynn Gackle in her article *"The adolescent female voice: Characteristics of change and stages of development"* describes that teachers who work with adolescent voices need:

- "1. an understanding of how the adolescent voice matures in order to give proper guidance to the development of voice skills and the selection of music;
2. an understanding of the potentials, limitations, characteristics, and unique qualities that may be encountered in individual adolescent voice;
3. a working knowledge of ways to assess the present vocal and musical abilities of each young singer, and ways to help them develop healthy, efficient personal voice skills;
4. a working knowledge of how to choose music that is within the physiological capabilities of young changing voices;
5. the ability to aurally recognize when adolescent voices are speaking and singing efficiently and healthy within their developmental capabilities, or are speaking and singing inefficiently and unhealthy" (Gackle, 1991).

Does this mean that we need to give up singing during the voice change?

The knowledge about voice change which occurs in adolescence which the future music teachers get during their studies is not enough for proper work with the developing voices. Many teachers are later dependent only on their own activity in getting more information. In 2014 only two lectures about adolescent voices and voice changes in puberty were organized for music teachers, singers and choral directors in Slovenia, which we believe is not enough. This is a reason why we were interested in the experiences that Slovenian teachers have in working with changing voices.

Problem Definition

"Because of the continuing growth in the size of the thorax and associated muscles (intercostal, diaphragmatic and abdominal) during puberty, proper coordination between these muscles during singing is difficult to achieve" (Cooksey, 1999). Teachers are often in a dilemma what to do with the voice they hear. How to teach singers through the process of mutation?

The purpose of the research

With this research we wanted to verify whether music teachers are aware of the importance of vocal technique during adolescence. We set the following research questions:

1. Do teachers prepare adolescents before singing with breathing and vocal exercises?
2. How much time teachers devote to prepare adolescents for singing?
3. Do teachers train boys and girls together or separately?
4. What experiences do teachers have with working with the voice during mutation?

Based on the research questions we have formed the following hypothesis:

H1: Teachers rarely prepare adolescents before singing with breathing and vocal exercises.

H2: Teachers do not devote enough time to prepare adolescents for singing.

H3: Most teachers train boys and girls together regardless to the voice change and individual singing abilities.

H4: Most teachers find it more important that adolescents warm up their voices and not how the selected vocal exercises will develop their voices.

Methodology

We performed non-experimental empirical research on a sample of 29 Slovenian music teachers. Results were obtained on the basis of a questionnaire; questions were related to the singing in the classroom. Teachers, who participated, answered a questionnaire on preparation of adolescent singers before singing with breathing and vocal exercises, on time which they devote to prepare adolescents for singing. Teachers responded to the question if they teach girls and boys together or separately, which breathing and vocal exercises do they use and what are their experiences with working with youth choirs and individual adolescent singers.

Sample

In the school year 2014/2015, we performed non-experimental empirical research on a sample of 29 music teachers from different Slovenian regions, who taught in elementary schools. The questionnaire was sent to 541 music teachers who taught in elementary schools, but only 29 (5,4%) of them answered.

Measurement Instrument

Questionnaires were sent to teachers who taught music in the third triad of elementary school. The questionnaires were anonymous and voluntary. For descriptive statistical analysis of the results Excel was used.

Results

Preparation before singing

Teachers responded to a question about the preparation of adolescents for singing with breathing and vocal exercises. 26 (90%) teachers prepare adolescents for singing with breathing and vocal exercises, 2 (7%) teachers occasionally prepare adolescents, and 1 (3%) teacher does not prepare adolescents before singing.

Time teachers devote to prepare adolescents before singing

Teachers estimated time which they devote to prepare adolescents with breathing and vocal exercises before singing. 7 (24%) teachers use 5 minutes, 15 teachers (52%) 10 minutes, 6 (21%) teachers 15 minutes, and only one teacher (3%), more than 15 minutes.

Awareness of individual singing abilities of adolescents

Teachers estimated their understanding of individual singing and vocal capabilities of adolescents. 26 (90%) teachers train boys and girls together regardless to the voice change and individual singing and vocal capabilities. Only 3 (10%) teachers train boys and girls separately.

Vocal exercises for adolescent voice

Teachers wrote the vocal exercises which they use when working with adolescent singers. 25 (86%) of them use "platoon" style of warm-ups.

Experiences in working with voices during voice change (mutation)

13 (45%) teachers answered that adolescents in their class do not sing, teachers also advise them not to sing, or even worse, teachers do not pay any attention, adolescent singers are left to fend for themselves and often develop incorrect and harmful vocal technique as a result of the lack of instruction. 5 (17%) teachers consider individual characteristics of singers. Their pedagogical work includes vocal exercises in a proper vocal range, where singers can sing comfortable. Teachers also educate adolescent singers about the physiology and acoustics of singing and speaking. They teach them to understand the process of voice mutation. 3 (10%) teachers allow boys to sing the selected literature an octave below the basic intonation. 2 (7%) teachers encourage singing high tones in head register, singing with an open throat, then gradually encourage singers to sing in a chest register. 2 (7%) teachers avoid singing in a low register. 2 (7%) teachers said that their singers during voice change don't have problems. 1 (3%) teacher points out that she is not sure whether she teaches correctly, 1 (3%) teacher claims that the voice change does not exist. She asks in which sex the voice change occurs.

Discussion

We were unpleasantly surprised by the number of received responses. It is sad that only a few music teachers responded to the questionnaire. Does this mean that only 29 music teachers found this topic interesting? Is a lack of knowledge and ignorance of teaching adolescent singers a much wider problem as demonstrated by the results of these 29 music teachers? A small percentage (5,4%) of responses indicates a low interest of the professional public to this problem.

The results show that music teachers included in the research are insufficiently aware of the importance of carefully selected vocal exercises for adolescents, in some cases, also lack of hearing and recognizing the voice changes. There are no similar studies on the importance of vocal technique in adolescence to find with which we could compare the results we obtained.

The analysis of the collected data show that music teachers included in the research are insufficiently aware of the importance of vocal exercises which they use to prepare adolescent voice before singing and the specific characteristics that occur during the voice development. A majority (87%) of teachers prepare adolescents for singing with breathing and vocal exercises. Some music teachers do understand the unique characteristics of young adolescent males and their changing voices. All of the success whether the voice will develop properly in a healthy way depends upon the knowledge and musical sensitivities of the individual music teacher. A singer needs to take good care of the voice and his or her entire body before singing even begins otherwise incorrect vocal coordination may develop and lead to unhealthy voice and speech habits (Bizjak, Brodnik, Hočevár, 2013). With proper preparation before singing we can reduce the risk of injury. The hypothesis H1 in which we assume that teachers rarely prepare adolescents before singing with breathing and vocal exercises cannot be confirmed.

We found a little bit worse results on the question about the time that teachers devote to prepare adolescents before singing. 76% teachers devote 10 minutes or less for preparation. Due to minor vocal capabilities we suggest to devote about 10 - 15 minutes daily for warm-ups. "Warm-up is the process by which the individual prepares his or her body for the demands of a practice session, rehearsal or performance. Physically it prepares muscles and joints for heavier and specific use. Mental preparation enables the coordination of the constituent details necessary. The techniques of singing are rehearsed and refreshed in a non-stressful way" (Williams, 2013). The hypothesis H2 in which we assume that teachers do not devote enough time to prepare adolescents for singing can be confirmed.

Third question was related to awareness of individual singing abilities of adolescents. Most teachers (90%) train boys and girls together regardless to the voice change and individual singing abilities. We believe that boys and girls should be trained separately, because every individual adolescent matures differently. Training boys on their own in small groups will help them focus on their own voice and changes which will occur during different stages of voice development (Freer, 2009b). By training boys and girls together,

boys can become confused because of the struggle to find the right octave (Jorgenson, Pfeifer, 2008). Teachers need an understanding of the potentials, limitations, characteristics, and unique qualities that may be encountered in individual adolescent voices. Listening to each adolescent singer is important in order to assess vocal development (Gackle, 1991). The hypothesis H3 in which we assume that most teachers train boys and girls together regardless to the voice change and individual singing abilities can be confirmed.

In the field of knowledge of the intention of vocal exercises we obtained worse results than expected. The research confirms that teachers working with adolescent singers often use "platoon" style of warm-up favored by most choral directors without knowing the aim of the exercises, which naturally may or may not conflicts with the concept of the individual nature of the adolescent voice (Titze, 2008). The problem is that most exercises are not suitable for developing adolescent voice because they often include a tessitura (not range) too high for the female changing voice. For this reason, boys sing "down the octave", which is too low. "All warm-up exercises need to have a direct relationship to singing; they are not just "for fun". If you don't know exactly what the exercise is achieving, leave it out" (Williams, 2013).

The hypothesis H4 in which we assume that most teachers find it more important that adolescents warm up their voices and not how the selected vocal exercises will develop their voices can be confirmed. Teachers have different experiences in working with voices during voice change (mutation). A little less than half of the teachers (45%) advice adolescents not to sing, or simply don't pay any attention. Adolescent singers are usually left to fend for themselves and often develop incorrect and harmful vocal technique as a result of the lack of instruction (Haston, 2007). Many of the problems adolescents encounter result from ignorance regarding correct vocal technique. Some of these problems include a forced, harsh tone, jaw tension, high larynx, breathy tone, nasality or hoarseness. Educating students about using proper technique can rectify these problems before they automatically cause incorrect use of laryngeal muscles. The results shows that only 17% of teachers consider individual characteristics of singers by educating about the physiology, acoustics of singing and speaking voice and the process of voice development. One of the music teachers showed incomplete knowledge about a voice change during adolescence. Generally speaking, the results of the study showed a great lack of knowledge about music teacher's work with adolescent voices. For this reason, some basic principles of the approach to the work with the developing voices are presented.

Approaches for working with adolescent voices

In the literature we can find appropriate vocal exercises which can be used when working with adolescent voices. As the most important warm-ups, Titze recommends phonation through lip and tongue trills, humming, and the use of the [o] vowel (Titze, 2008).

Cooksey states that while exercising voice in its mutational stages, establishing good postural habits is of the utmost importance. Vocalizing in the most comfortable range at the outset of warm-ups is essential, with attention gradually given to all registers in an

effort to blend them. Additionally, educating young singers about the mutational process, its implication for the voice, and the physiology and acoustics of singing and speaking are ways to highlight the uniqueness of the changing voice while helping adolescents understand that they are not alone in this phenomenon. Cooksey describes in detail numerous exercises in the following areas: (a) breath management; (b) kinesthetic and vocal warm-ups; (c) tone quality and resonance; and (d) intervallic, dynamic, and rhythmic flexibility. Exercises are developed specifically for the different needs of female and male singers (Cooksey, 1999).

There is increasing evidence that adolescents who view themselves as unsuccessful singers will only rarely seek choral music experiences in adulthood (Ruddock, Leong, Widden; 2005, 2008). Adolescent boys undergo a more dramatic vocal maturation process than adolescent girls, and this may account for the declining number of adult males who sing in choirs worldwide - the so-called "missing males" phenomenon in choral music (Freer, 2007). Students view themselves as unsuccessful when they experience embarrassment while singing, are asked not to sing because of their changing voice, or are not given opportunities to sing in choirs. It is the student's perception of these issues that is most influential in future decisions about participation in musical activities (Freer, Ververis, 2011).

If we want to teach young people about their voices we have to choose musical activities that are optimal for them. Teachers and students both need to be knowledgeable about what vocal change involves and the challenges it presents (Freer, Ververis, 2011). The adolescent vocal change is prompted by hormonal changes in the body that may begin as early as age 9 and are associated with puberty. During puberty, the male vocal folds increase in both length and thickness. The average increase in length of about ten millimeters lowers the range an octave or more. Of concern to the music educator is that the lengthening occurs at different rates in different boys (Cooksey, 2000). The male adolescent voice isn't the only one that changes. So does the female voice, but it changes more in quality than in range. Because male adolescent singers will experience changes in both range and the sensation of vocal coordination, choral music teachers need to take these issues into account when selecting repertoire and rehearsal methods (Freer, Ververis, 2011).

Changing voices are affected by many easily overlooked musical issues. For example, boys, usually "tenors," who have been reading pitches from the treble staff for years are suddenly presented with the conundrum of singing those pitches an octave lower than they are printed. "Baritones" may have to learn to sing in a completely new clef-the bass clef. Also, the standard warm-ups at the beginning of the rehearsal may need to be adapted for changing pitch levels (Freer, 2009a).

The following are some key points about warming up choirs with changing voices. Warm-ups are singing, and the unison singing that won't work for repertoire won't work for warm-ups. The composite unison range of any middle school choir is approximately a sixth, from G3 to E4 (U.S.A Standards Association) or from g-e1 (Helmholtz system)

(Cooksey, 1999). Even when beginning with a pitch that every student can sing, any Do-Mi-Sol vocalise by half steps up will have left some students behind after the third ascending repetition.

At the most basic level, a choral warm-up is a sequence of activities focused on the coordination of vocal skills in preparation for the challenges of a specific rehearsal. Key components of a successful warm-up session for young adolescents include a logical sequence that remains consistent from day to day (daily regimen), an allowance for student choice and experimentation within the procedures, a clear pedagogical relationship between the tasks of the warm-up session and the repertoire to follow, and an allowance for a variety of student groupings, body movements, and physical locations within the warm-up session (Freer, 2009b).

There are five sequential stages of an effective choral warm-up session. Beginning with relaxation, teachers should use imagery such as the weather (tapping different parts of the body hard or soft, fast or slow), getting ready for school, sporting events, etc. Teachers might ask students to act out some actions that stem from these ideas, such as shivering, wiping sweat off of the brow, opening and closing an umbrella, and so forth. Carefully chosen physical activities will both relax the musculature of the students and gradually draw their focus toward following the directions of the teacher. These are essential for the effective functioning of a choral ensemble (Freer, 2009b).

Following relaxation activities, students will be ready to focus on physical posture and body alignment. Some choral conductors insist on strict posture for singing, but the extreme variations in adolescent bodies makes this impractical (Freer, Ververis, 2011).

The establishment of an optimal physical alignment will then make breathing easier. Choral conductors should always remember to have students exhale before inhalation. If they do not exhale first, an excess of air may accumulate in the lungs, resulting in a raised chest and shoulder position. Rather, use a motion such as an underhand softball toss where the toss is the exhalation and the wind-up is the inhalation. This motion also both relaxes the shoulder muscles and reinforces the concept of breathing low in the body.

There is one more step before the singing of vocal exercises begins. Students need to coordinate their breath flow with their vocal mechanism. This can begin by having students quietly laughing then hum on a pitch of their own choosing. This will accommodate voices at all stages of change. From a pitch in the middle of the range, have students descend in pitch by half step before ascending. This will gradually coordinate the breath and vocal folds in producing the balanced voice with necessary pitch and rhythm.

Finally, vocalizes can be introduced as the final step. These vocalizes may not always be sung in unison when there are many different voice parts represented by the students. Look for ways that students can achieve the intended goals even though they don't sing on the same pitch. One approach is to have students sing a national song or folksong starting on a pitch of their choice. The result may sound like cacophony, but it's also a challenge for

students to maintain their own part while others are singing something similar but not identical. For all sequences of vocalizes, it is wise to gradually move toward higher pitches, to gradually sing at louder volumes, to gradually increase the speed of singing (especially when there are leaps and skips in the exercise), and to end with a calming vocalize that relaxes the voice into the lower range (Freer, 2009b).

Some choral teachers find it helpful to repeat a vocalize when they get to the moment in rehearsal where that vocalize would help students with a musical passage in the repertoire. This will help students understand the relationship between the vocal techniques experienced in the warm-up process and the technique used to sing passages in the repertoire. The choral warm-up sequence presents an opportunity for teachers to teach skills and present solutions to problems that will arise as students learn their repertoire. In other words, the warm-up process offers an opportunity to prepare for the rehearsal to follow (Freer, 2009b).

Conclusion

With the results of the research made on a sample of 29 Slovenian music teachers, we found that teachers spend too little time preparing adolescents before singing. They pay little or no attention to individual voice abilities of singers and are insufficiently aware of the meaning and purpose of vocal exercises which they use to train adolescents during voice development.

Results of the importance of vocal technique in adolescence open many questions and dilemmas that should be further examined in future researches. The lack of scientific studies from a physiological and a pedagogical point of view highlights the need of research in this field in Slovenia. We see the need for educating future music teachers on the proper voice function, correct vocal technique; train their ears to recognize the specific characteristics of changing voices and the ability to teach adolescents about the changes that occur during the voice development.

We believe that despite the changes which occur during puberty, we should not abandon singing, but thoughtfully and with available knowledge work with adolescent voices with planned pedagogical approaches, conscious use of vocal exercises, designed to build healthy sound and technique. Some basic principles for the work with adolescent voices are presented.

To compare the impact of vocal exercises on the voice of adolescent singers who sing during the voice change and develop their voices with vocal exercises and adolescents who don't sing during the voice change, it is necessary to perform a pilot study.

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