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Vocal Pedagogy and Rehearsal Strategies in Adolescent Choral Settings: An Observational Study of Australian National Choirs

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Abstract

Purpose: The purpose of this study is to explore vocal techniques and pedagogical approaches applied in adolescent choir rehearsals with particular attention to adjustment of the teaching process for learners of different age and developmental level. The study also aims to address the growing need for effective and healthy vocal training strategies for adolescent singers during periods of vocal and physiological development. **Methods**: An observational research approach was applied. The data was collected using observation of rehearsals conducted with participants of five national choirs from Australia – Novus, Voice, Latitude, Singers and Chorale. Participants comprised choristers of about 10 to 18 years old along with professional conductors and music educators. **Results:** The results show that there is a pattern of gradual development in the focus of pedagogical approach within the choirs. Young choristers needed warm-up activities, methods of engaging learners' attention, and voice technique instruction to deal with such problems as pitch and pronunciation. In contrast, the adolescents and advanced students demonstrated a focus on breath coordination, consistent tone, and vocal health awareness. Methods of instruction that proved to be successful in enhancing vocal techniques included the use of gestures, imagery, and other methods of interactive learning and rehearsal. Within the advanced choirs, it became evident that focus should be placed on interpretive skills, tone quality and collaborative decision making within music. **Conclusion:** It was found that age-related adaptation of pedagogical approaches proves necessary in choral education. Successful choir training should involve a variety of aspects of training, development of physical awareness, and musicality along with proper instructional language and care for singers' vocal health. The findings provide practical implications for choir conductors, music educators, and vocal practitioners seeking to create safer and more effective rehearsal environments for adolescent singers.

Keywords: Choral Pedagogy, Vocal Technique, Adolescent Singers, Vocal Health, Rehearsal Strategies

Introduction

This essay discusses vocal techniques involved in choral rehearsals, focusing on scientific singing regardless of whether choirs are professional or amateur. The application of proper vocal techniques is aimed not only at preventing possible harm from singing to vocal health, but also helping to improve the aesthetic level of the choral tone. According to Fuchs (2014), singing techniques have positive influence on different aspects of choral performance including intonation, flexibility, resonance, tone color, rehearsal efficiency, and ability to sing wide repertoires. Taking into account choral conducting practice, rehearsal activities as well as its results are equally important. Therefore, conductors have to encourage vocal development together with achieving artistic and teaching goals.

Adolescent choral pedagogy is an ever-increasing field of study since being part of a choir continues to be one of the most popular ways of music instruction in educational institutions and community music projects across the globe. Adolescence is characterized by the quick growth and development of adolescents in terms of their physiology, emotions, and cognition. In the absence of suitable pedagogical techniques, young vocalists may form harmful vocal practices that could undermine not only their vocal performance but their vocal well-being as well.

As was noted above, adolescents suffer from many physiological changes caused by voice mutations during puberty. Fast development of the laryngeal apparatus causes temporary vocal instability among both genders because there is needed "a constant reassertion of the muscle control skills needed for speech and singing" (Barlow & Howard, 2002). Thus, adolescent singers are especially prone to vocal strains and potential damage caused by unstable vocal mechanism. They may experience various problems related to improper vocal work such as too much breathiness, insufficient phonation over the vocal range, narrow range, unpredictability of voice production, difficulties in transitions between registers, and weak vocal stamina (Sweet, 2015).

Additionally, choristers find it problematic to hear and evaluate their own voices when singing in the ensemble because there is no opportunity to separate individual sound in collective performance. Many choristers are amateurs lacking special vocal training that could be provided to instrumentalists, which makes them less familiar with wrong vocal behavior. Later, Smith and Sataloff (2013) state that conductors are able to protect and harm singers at the same time because conductors can detect vocal problems needing attention. That means that conductors and music educators should care about singers' vocal health, especially concerning adolescents.

However, not all middle school music educators have sufficient conducting experience, which does not enable them to know how to teach vocal techniques in limited rehearsal time. Moreover, conductors cannot observe every singer in the ensemble at once, and this situation may result in misunderstanding of the right technique of singing. Long term vocal misuse leads to physical and psychological damage. It becomes necessary to create effective rehearsal strategies that will allow improving singers' vocal performance and choral tone.

In spite of increasing interest towards vocal health and safety among music educators, there is only a small number of observational studies devoted to how conductors modify their

methods of teaching voice depending on various phases of adolescent development in practice. Most existing papers talk about the theory of vocal technique and choral pedagogy; at the same time, there are fewer empirical papers that deal with the implementation of pedagogical approaches in practical rehearsal processes. This paper aims to investigate this problem and offer some observations in relation to Australian National Youth Choirs in particular.

For instance, it is recommended to use gestures and conducting in order to provide singers with timely non-verbal feedback that will help them improve their vocal performance. Errors regarding rhythms, diction, dynamics. can be easily detected and corrected with the help of vocal instructions. However, singing a particular choral tone cannot be explained easily and clearly; therefore, gestural expression becomes essential for a successful performance. Conductors have to establish an active communication link with singers so that both of them understand each other well.

Gondwana Choirs in Sydney, Australia is the example of choral pedagogy focused on adolescents. Through organising choral schools throughout the country, the choir trains young choristers using proper rehearsal strategies. Analysis of Gondwana rehearsals of Novus, Voices, Latitude, Singers, and Chorale in a two week period will allow finding out typical vocal problems experienced by adolescent singers and techniques used by conductors to resolve them. In conclusion, this paper will discuss efficient vocal techniques applied in choral rehearsals taking into account relevant literature. Specific attention will be paid to the role of warm-ups, vocalises, and rehearsal strategies.

Literature Review

Posture

The other basic component of vocal production is posture, which directly affects the quality of sound produced. Proper singing demands flexibility and relaxation of the body. According to Ehmann and Haasemann (1982), “the music making presupposes the loose and flexible body perception.” On the contrary, tension may lead to constriction of the vocal tract, resulting in poor resonance and inadequate tone quality.

Proper posture involves appropriate and balanced body posture. As indicated by Ehmann (1968), choristers ought to maintain their feet wide apart and relaxed legs, hips, shoulders, and necks. The muscles of the face should be relaxed and a smiling expression maintained, while the throat should be kept open. The above body posture ensures the expansion of the vocal cavities, such as the oral and nasal cavities, which facilitate sound production. Active body posture while rehearsing also allows conductors to monitor the singers and encourages them to maintain their voice throughout. Physical exercises can also help choristers develop proper body perception and posture. For instance, Ehmann and Haasemann (1982) recommend body exercises, such as movement games, stretching, running, and relaxation exercises.

Breathing

Once the posture is set up correctly, then breath management becomes a critical component of successful singing. Whereas the breathing process in speech occurs almost unconsciously,

singing requires active respiratory control. As such, choir members often depend on the guidance of conductors in order to develop adequate breathing techniques.

According to Brown (1931), inhaling must be quiet and regulated and usually occurs via diaphragmatic breathing. However, it must be noted that, as McCoy (2012) explains, singers cannot exert conscious control over their diaphragms and have to focus on the coordinated activity of their abdominal, lumbar, and intercostal muscles. Inhaling deeply moves the diaphragm down, while the other muscles regulate the air flow required for singing.

The lack of appropriate breath support may lead singers, especially novices, to compensate for that by using excess laryngeal effort. As mentioned by Emmons and Chase (2006), that, in turn, leads to vocal strain. One well-known method of breath management is the use of appoggio, where breath support is provided by keeping the ribcage and sternum expanded. Conductors may use different metaphors to help singers understand breath control, such as "smelling flowers" and yogic breathing techniques.

Vocal Tone Quality

Chiaroscuro

One of the most complex elements in choral singing is the process of developing the choral sound quality. It is common for conductors to use the technique of imagery or metaphors called resonance imagery. In such a way, choral singers rely on their sensory perception and imagination (Fuchs, 2014). Yet, without an appropriate knowledge of music or anatomy, they might misinterpret this kind of instruction.

The idea of *chiaroscuro* is viewed as a harmony between the notions of “dark” and “bright” tones. According to Lamperti (1905), it reflects the combination of forward resonance with the space of voice. Developing the notion of *chiaroscuro* ensures better richness of sounds, intonation, and harmonization of the chorus. Moreover, as stated by Fuchs (2014), maintaining this balance allows interpreting music and expression properly. Using nasal consonants (m, n) may promote resonance balance in practice. Nonetheless, overusing nasality should be avoided in order not to harm singers’ health. Occluding the nostrils while making sounds could help singers evaluate resonance correctly.

Passaggio

Efficient singing involves the harmonious cooperation between various vocal registers, which is generally referred to as *passaggio*. Emmons & Chase (2006) define *passaggio* as physiological processes that have great impact on tuning, comfort of singing, and consistency in tonality. Unbalanced registers often result in difficulty and strain in higher registers.

In pedagogical terms, students are encouraged to make use of increasing amounts of head voice when they move into higher registers; however, they are supposed to make use of chest voice when singing lower notes. There are exercises that encourage singers to practice their registers in such a way to achieve balance, such as transitioning from falsetto to modal voice, or practicing specific intervals like “do-re-mi-re-do”. In this way, it helps to improve the kinaesthetic awareness and efficient voice use.

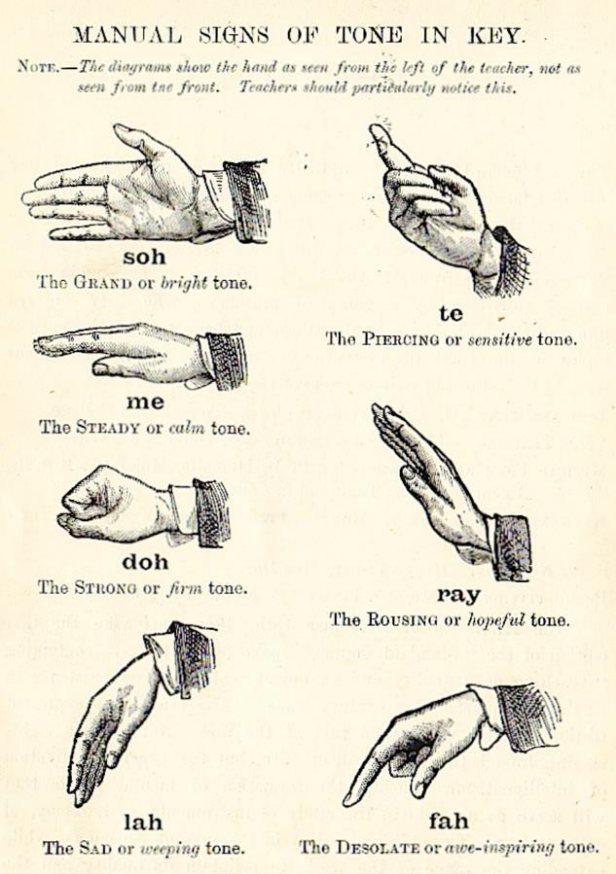

Figure 1. Curwen's Solfege hand signs
(Source: Wikipedia)

Tonic sol-fa system of teaching music was pioneered in the mid-1800s by John Curwen to teach sight singing and relationship between various pitches (Curwen, 1858). The basic feature of the tonic sol-fa system is the hand sign representation for all seven pitches or scale degrees. These hand signs were adopted by Zoltán Kodály into his methodology and modified to show pitch directions, where high pitch will be represented with high hand positions and low pitch with low positions (Choksy, 1999; Houlahan & Tacka, 2008). In teaching hand signs, one would usually start with placing "Do" somewhere around waist level up to placing "Ti" at eye level.

While theory of "learning styles" did not exist during John Curwen's time, it should be noted that the method of tonic sol-fa involves multiple forms of learning because the hand sign representation makes it multimodal in the sense of integrating visual, auditory, and kinesthetic approaches to teaching music. From a current perspective on holistic learning in music pedagogy, the approach used by Curwen in his method can be viewed as holistic (Choksy, 1999).

Aggiustamento

Considering the different anatomy of each singer, they should also alter their vocal tract position through *aggiustamento* (vowel modification). According to Fuchs (2014), it is essential for singers to have independent modifications because conductors cannot solve each individual's vocal problem during rehearsals. Modification techniques, including vowel

sequences (for instance, i-e-a-o-a-e-i), help maintain resonance throughout the singer's voice (Garcia, 1894). Moreover, practicing the song using only one vowel until the text reappears promotes uniformity in sound production. Besides, conductors should also check whether the jaws move too much because some singers tend to over-emphasize vowels, creating extra tension (Fagnan, 2005).

Choral Warm-ups and Cool-down

Warming up is one of the most important elements of choral rehearsals that prepare performers physically, psychologically, and vocally for the needs of their performance. For example, according to Rosabal-Coto (2006), the process of warming up activates the vocal mechanism and ensures its readiness to sing. It is reasonable to regard singing as any physical activity that spends energy on the performance (Emmons & Chase, 2006). Warming up does not only include the preparation of performers' physical state; it also facilitates their transition from speaking to singing as a process that requires both physiological and psychological activation of the body.

According to Smith and Sataloff (2013), warming up goes beyond the exercise that simply stretches vocal muscles. Warming up enables performers to transit from the work of the vocal mechanism during the process of speaking to singing. In reality, conductors usually pay much attention to warming up during choral performances. Vocal exercises that are aimed at improving posture, enhancing breathing abilities and skills, and developing resonance ensure the efficient activation of the vocal mechanism of choral performers. Moreover, as in the case of other aspects of warm-up, the process has a cognitive component that helps to concentrate on singing.

Likewise, both “warm-up” and “cool-down” processes are considered important aspects of choral performance because they aid in regulating the mental and physiological conditions of the singers (Smith & Sataloff, 2013). Despite being well-practiced, warm-up and cool-down exercises are crucial even in well-trained choirs as a way of avoiding voice injuries. Whereas warm-up exercises are common, cool-down exercises are commonly ignored although they are important. Cool-down exercises help the voice move from the high level of usage during singing to the relaxed position of speaking hence minimizing vocal misuse or fatigue.

According to Ragan (2018), the process of cool down involves eight different exercises aimed at restoring the function of the vocal organs, relieving fatigue, and making vocal folds vibrate more efficiently after prolonged and intense use of the voice. The first stage (Exercises 1 to 3) focuses on semi-occluded vocal tract (SOVT) exercises such as straw phonation and humming. SOVT exercises increase the pressure in the mouth leading to vocal folds adduction resulting in efficient phonation. Humming acts as a resonance voice (RV) exercise.

In Exercise 4, the focus is on flow phonation. Flow phonation focuses on smooth and gentle air flow through the [hw] consonant. The benefits of flow phonation include minimizing the problem of excessive vocal fold compression. Vocal fry, which is used in Exercise 5, can relax the intrinsic laryngeal muscles and contribute to good vocal fold closure. Exercises 6 and 7 are directed at stimulating the production of sounds in the chest register in order to balance vocal folds. These exercises are necessary for the singers who work predominantly in the head register in order to achieve their neutrality. Exercise 8 involves using a "floaty" [u] vowel in

descending scales. In this exercise, singers are required not only to sing but also to check whether the vocal folds have recovered from intense vocal performance. If there are difficulties with singing softly at high pitches, it may signal incomplete vocal recovery.

To sum up, posture, breathing techniques, phonation, and proper warm-up procedures should be included in the basic elements of choral pedagogy. Despite the limitations, choir conductors may find it difficult to tackle all issues of each member's vocal technique in rehearsals. However, through vocal training, exercises, and collaborative practices, singers can become more aware of their vocal skills, learn how to use them appropriately, and make improvements where needed.

Methodology

Research Design

The current research utilized qualitative research methodology in conducting observations on vocal techniques and methods of instruction in adolescent choir rehearsals. The observational approach is ideally designed for use in educational environments since it facilitates the observation of the natural behavior of individuals without interference. In this regard, the observation of behaviors and actions that take place between the choirmaster and the singers was intended to shed light on the actual processes that took place during rehearsals in the context of instruction in vocal techniques.

Participants

The study took place at Gondwana Choirs in Sydney, Australia, during a two-week intensive program at the National Choral School. Data collection took place in five different choir groups including Novus, Voices, Latitude, Singers, and Chorale. The groups reflected different ages and developmental stages in singing and learning music. The participants were young choral members in the age group of 10-18 years, along with conductors and music teachers who had expertise in the field.

Data Collection

The research included data collection using non-participant observation, which took place during different rehearsals. As a part of the research methodology, the process of data collection included recording different elements of the rehearsals. Among other things, the researcher observed and recorded how vocal techniques such as posture, breathing, resonance, and registration balance were used, as well as how different warm-up exercises were designed and performed. Specifically, emphasis was put on the communication that occurred between the conductor and the participants of the choir through different signals (both verbal and non-verbal), particularly gestures, and the behavior of the choir members. Besides, audio recordings of the rehearsals were made to supplement the findings of the observations.

Data Analysis

Data analysis was conducted using thematic analysis as a methodology, whereby themes could emerge through the inductive analysis of the observations. Initially, the analysis began through multiple readings of the field notes to gain familiarity with the data. The next step involved identifying and coding key elements within the field notes with regard to vocal technique and teaching methods. The codes were then used to generate thematic categories

that included alignment, breathing, use of gestures, vocal health, and rehearsing. These themes were then used to gain a deeper understanding of the field notes in terms of the current literature. Thus, the analysis revealed vocal problems encountered among choristers and the methods used by conductors to solve these problems.

Researcher Positionality

The researcher adopted the position of a non-participant observer throughout the research process to avoid affecting the environment of the rehearsals and the participants' conduct. Despite having some experience in choral conducting and vocal teaching, the researcher strove to be reflexive and question any preconceptions while interpreting the data in order to be unbiased and objective.

Trustworthiness and Ethical Considerations

A number of approaches have been used in order to improve the validity of the research. First, extended periods of observation for two weeks have helped in observing several ensembles. Second, comparing different choirs and conductors was a way of methodological triangulation. Third, field notes were written and audios were recorded in order to develop thick descriptions. Finally, reflexivity helped in reducing the possible researcher bias. All ethical aspects were taken into consideration during the course of the research. The experiment was held as part of an already existing educational programme. Moreover, only collective behaviors and teaching methods were considered and studied during the research, which meant that there were no personal data collected from individuals.

Results

Observations of five national choirs from Australia, namely Novus, Voice, Latitude, Singers, and Chorale, were performed during the summer semester. In addition, attendance at a two-week conducting workshop held at the National Choral School Gondwana contributed significantly to gaining experience with the conductors, teachers of music, and a group of gifted choristers aged around 10 to 18 years old. The passion of these singers for music, as well as the innovative ways of teaching and philosophy of teaching, played an important role in forming the musical understanding. The report provides a list of typical problems that appear in the singing process of the choristers, as well as advanced techniques used in their work.

Table 1
Comparative Results Across Choirs

Choir (Age Group)	Novus (10–12)	Voice (12–14)	Singers (14–16)	Latitude (15–17)	Chorale (University)
Posture	Emphasis on standing alignment, stretching, correct body positioning	Body awareness through greeting exercises	Generally assumed; less explicitly addressed	Supported via hand positioning during exercises	Well-established and independent
Breathing	Strong focus on diaphragmatic breathing; verbal cues ("breathe in/out"); peer checking used	Breath control via sustained phonation, counting, tongue trills	Breath coordination (throwing gesture); avoiding hyperfunction	Breath continuity implied	Managed implicitly within phrasing
Resonance	Developed through imagery (e.g., gestures linked to pitch) and syllables ("wu", "zig", "bla") to reduce tension	Focus on "open throat" and resonance imagery	Indirectly addressed through efficient phonation	Strong focus: humming (m, n, ng), vowel shaping, *chiaroscuro*	Highly refined; focus on tonal cohesion and expressive resonance
Register Balance	Introduced implicitly via pitch-based gestures and simple vocal patterns	Addressed via interval exercises and vowel consistency	Key concern; ensemble balance emphasised	Explicit register transition and tonal consistency work	Integrated into musical interpretation
Warm-ups	Structured and playful: breathing drills, gesture-based pitch work, phonation, games	Mixed approach: vocal health discussion, interval work, breath control tasks	Gesture-based coordination; conceptual breath work	Advanced: humming, aggiustamento, octave patterns	Focus on expression, legato, interpretative refinement
Verbal & Non-verbal Cues	Frequent verbal instruction + clear hand gestures; interactive	Verbal explanation + modelling + discussion	Strong non-verbal cues; importance of clarity in language	Gestural guidance; less verbal correction	Subtle, fluid gestures + dialogic verbal feedback
Cool-down	Semi-occluded vocal tract exercises + basic shoulder and neck relaxation	Semi-occluded vocal tract exercises + Body relaxation to reduce fatigue	Semi-occluded vocal tract exercises + physical relaxation	Semi-occluded vocal tract exercises + relaxation of upper body	Semi-occluded vocal tract exercises + targeted physical release

Table 1 describes the observations in terms of pedagogical and vocal aspects in each of the five choirs studied. These include posture, breathing, resonance, register balance, vocal warm-up and vocal exercises, conductor cues, and vocal cool-down practices among others.

According to the findings in the table, there is a notable increase in development of teaching methods as the age of the choir members increases. For instance, the two youngest choirs (Novus and Voice) receive more structured guidance in posture, breathing, and singing compared to their counterparts. The latter have been trained on how to incorporate singing and music into their performances by using various conductor cues, resonance, and vocal warm-up exercises.

Interestingly, vocal warm-up exercises are very important in all the choirs. Nevertheless, these exercises vary from one choir to another depending on the age of singers involved. For example, game-like vocal warm-ups dominate in Novus while more sophisticated exercises that emphasize vocal technique are found in Latitude. Conductor cues also become more refined as the age of the choirs increases. Younger choirs use more verbal cues together with exaggerated gestures while older choirs pay attention to subtle cues and fluidity of movements. Finally, the last finding that stands out is the consistent inclusion of vocal cool-down practices in all the choirs. Semi-occluded vocal tract exercises along with the physical relaxation is a common practice. Contrary to the warm-up exercises, cool-down practices do not receive much pedagogical attention.

Novus Choir (Aged 10-12)

Singers aged 10 to 12 in Novus are much younger compared to other choirs' choristers. Different age groups demonstrate a different level of singing skill and various vocal challenges that need to be addressed. It is expected that children in Novus are more likely to experience difficulties such as inaccurate intonation and improper pronunciation. Therefore, conductors of inexperienced singers should focus their efforts on training young singers in basic skills, constantly providing feedback, and making appropriate adjustments during singing, preventing misuse of their voices. Moreover, warm-up activities are especially vital in case of younger singers since they might have some attention problems which should be taken into account in terms of pedagogics. Warm-up activities used in Novus positively affect younger singers.

First, young singers stand, stretch their bodies, and make appropriate positions. Next, choristers practice breathing. Conductor, who is called anonymised K here, gives singers verbal hints like "breath in," "hold," and "breath out" to teach the children to feel breathing properly. However, at all times the conductor insists on diaphragmatic breathing as opposed to chest breathing. Directions to relax, not raise shoulders, and expand abdominal cavity upon breathing help young singers master the breathing technique. Besides, peer checking is used. Choristers turn to nearby peers to observe and assess whether the breathing technique is applied correctly. Thus, the method increases students' involvement and makes them motivated.

Further, choristers vocalize the sound "wu" on G, F-sharp, E, D, and C-sharp in the key of D major. Conductor uses special gestures associated with each note; therefore, singers have to mimic the gesture while singing the note. Specifically, for the pitch G, a conductor makes an extended hand gesture with palm turned towards the singer. For F-sharp, the conductor raises his hand with the concave palm gesture. E-pitch is accompanied by the palm-down gesture, whereas for D-pitch singers make a gesture with closed fingers reaching upwards. Finally, for C-sharp-pitch a conductor uses an additional gesture. This approach promotes

better intonation and serves as resonance imagery, thus enhancing the choral sound balance. Also, syllables "zig" and "bla" are pronounced. Such an exercise makes singers relax tongue muscles and decrease tension. Usually, inexperienced singers use jaw excessively when producing vowels; thus, vowel pronouncing becomes unbalanced (McKinney, 1994).

Moreover, two games were introduced, namely name game and figures game. During name game, a conductor chooses a student and asks everyone in the choir to sing the chosen person's name according to the melody that was given to singers earlier. The game makes the class atmosphere brighter and encourages choristers to get involved into activities. Figures game is similar to a canon. Three groups of singers sing "one," "one two one," and "one two three four three two one" in one melody.

Voice Choir (Aged 12-14)

In particular, the Voice choir consists of singers around the age of 12 to 14. Even though some of them have had some training before joining the group, several of them are still undergoing voice change. It is thus essential for conductors to take into consideration the vocal health of singers and provide instant solutions when needed. Every choir participating in the Gondwana programme goes through eight days of intense rehearsals; this time includes daily long periods of practice. Therefore, it is possible that singers would experience fatigue, and as a result, be vulnerable to voice strain and throat injuries.

As part of the warm-up procedure, conductors encourage discussion on vocal health maintenance. Commonly, choristers share their suggestions of drinking plenty of fluids, having sufficient rest, using proper breathing techniques. At the same time, the conductor adds to that information. This is crucial since singers may know how to take care of their voices but may not be aware of the issues of overworking their voices because of lack of experience. Thus, conductors bear substantial responsibilities in terms of vocal health monitoring. Warm-up begins with greetings aimed at various body parts; it is both fun and helpful as it makes singers aware of the state of their bodies. Several vocalization exercises are applied to work on vocal technique. During one of the exercises, the conductor chooses a set of pitches, and choristers sing corresponding numerical intervals: one, three, five, three, one on C4, E4, G4, E4, and C4. This exercise contributes to developing good sense of pitch, helping singers work on intonation.

The other exercise suggests that choristers should hold a sound for a long period of time using only one breath, counting numbers during this time. Whoever lasts the longest receives special appreciation and becomes an example for other singers. Besides, tongue trill octaves exercises are conducted to enhance breath control and help create continuous airflow. Having developed feeling of breath, conductors ask singers to produce /a/ sound using the same breath technique. The importance of not making too much tension is stressed, and singers are advised to imagine a space inside their heads, usually referred to as open throat. Conductors make demonstration of both right and wrong technique in order to better explain the difference. These exercises are conducted repeatedly alternating with tongue trills to imprint the correct use of breath into memory.

The formation of the concept of open throat may require singers to have sufficient knowledge and singing experience. According to McKinney (1994), singing with a yawn position allows

singers to depress the larynx, raise the soft palate, increase pharyngeal cavity, relax articulatory muscles. Other imagery techniques, such as imagining holding something large in their mouth, might be useful in forming the correct vocal tract shape. Having formed a proper way of opening the throat, singers go on working on the pronunciation of vowels /a/, /i/, /u/, /e/. Then, other vowels are included into syllables /ma/, /ta/, /la/, and /pa/. All of them have identical resonance. After that, conductors proceed to teach choristers dynamics. Several exercises are performed, where the singer sings pitches according to changing dynamic marks suggested by the conductor's gestures. Large gestures are associated with strong sound while small gestures with soft sound.

Singers Choir (Aged 14–16)

The age range of choristers in the Singers' group is 14-16. Hence, a relatively large number of adolescents represents a certain challenge for conductors managing the chorus. The creation of an evenly distributed tone across all choristers represents another issue for the conductors of the Singers' choir. Thus, it is crucial to stress both the success achieved by the singers and the confidence shown by the conductors in their work. Concerning the techniques used in the warm-up, it is worth stressing that the role of the coordination of the throwing gesture and its influence on the phonation process deserves attention. Using this gesture while making a vowel contributes to the improved sound of the chorus since it ensures correct coordination of breath usage without straining the articulatory muscles. At the age of 14-16, the extrinsic muscles of the larynx are not fully formed yet and can be strongly influenced by the subglottic air pressure.

However, some conductors use cues referring to the increased vocal support as a means to achieve the needed breath management. However, if this technique is used ambiguously or mechanically, singers cannot understand it correctly. Hyperfunction is one of the most typical vocal mistakes made when managing the breath inadequately. When there are many voices, it becomes impossible to monitor each singer's performance, thus using unambiguous language becomes crucial. The throwing gesture helps to achieve this goal. Another way to ensure breath coordination is engaging breathing and support as suggested by Fucas, as well as implementing breath pacing instead of breath support according to Miller's recommendations. There may be different terminologies used in regard to this process. However, the most productive seems to be flexible breath coordination.

Latitude Choir (Aged 15–17)

In Latitude choir, choristers are about 15 to 17 years old. At this age level, singers typically have gained some basic knowledge of voice singing; therefore, the conductor may focus more on developing the tonal quality of the choir. One way to do so includes beginning with the voice warming up on humming the consonant n in a certain note (G) followed by patterns such as mi mai ma in descending degrees. This exercise helps improve the quality of resonance as well as coordination of the vocal tract and results in a better tonal quality of the voice. As stated by Nesheim (1995), the consonants m, n, and ng assist in gaining a well-balanced *chiaroscuro* quality.

Another valuable exercise for improving the tonal quality is focused on maintaining consistency in tone across various notes in pitch. Here the conductor uses the syllable ya for ascending and descending octave patterns where singers are asked to keep their hands

extended in front of the body. The exercise is based on the typical tendency of singers to change tone quality when switching registers, especially for high notes where the tone becomes too bright. In order to help achieve a more consistent tone, conducting gestures with the hands can serve as a hint to keeping larynx stable and breath continuously active.
One more useful exercise includes practicing *aggiustamento*, meaning that the conductor teaches singers how to adjust their vowels on various pitches. For example, the singers produce phrases like ha low want to see using a melodic pattern that goes through both low and high notes. While producing high pitches, singers tend to raise their heads thus causing excessive tension in muscles and narrowing the vocal tract. To prevent that from happening, the conductor makes a gesture of moving his/her hand down when producing the highest pitch, asking singers to mimic him/her.

Chorale Choir (University Level)
On the contrary, choristers in the Chorale choir exhibit higher singing competence. Most members consist of university students that have undergone vocal education in formal settings. As a consequence, the conductor focuses more on expressive interpretation in the performance, which is the final goal of singing as a musical expression based on accurate understanding and effective communication through music.

Clarity and immediacy of instructions delivered by the conductor are crucial for a good rehearsal. The conductor often uses gentle and flowing gestures in guiding choristers in creating *legato* singing style. It is a basic technique in a choral setting and defined as connecting sound seamlessly from one note to another while maintaining constant phonation, resonance, and breath flow. The technique is beneficial in improving intonation, diction, modification of vowels, flexibility, resonance, and tonal cohesion (Alphonse de Lamartine, 2003).

Moreover, the conductor continuously encourages choristers to provide their views regarding the expressive interpretation of some parts of the repertoire. It will foster engagement and critical thinking among the singers, encouraging them to contemplate ways on how to execute their singing performance well. Afterward, the conductor offers constructive feedback and adjustment to further improve the performance and understanding of the singers. In general, observations conducted among five choirs emphasize the importance of age appropriate pedagogical strategies, use of physical and imaginative approaches in teaching, and clear instructions provided by conductors.

Discussion
The results of this study stress the importance of utilizing age-specific techniques during the process of training choir singers, showing the definite developmental pathway in vocal education that is linked to the singers' physical and psychological development, as well as their past experiences with music. Considering the five choirs studied in this research, it is obvious that choral pedagogy cannot be a one-size-fits-all approach but rather changes depending on the age of the participants. This statement is in agreement with the existing theories of vocal education, according to which vocal training should adjust to the needs of singers (Choksy, 1999; McKinney, 1994).

Among the young ensembles, Novus (ages 10-12) presents a unique situation where the role of engagement and focus becomes very important. The use of multimodal approaches, such as the application of gestural techniques to demonstrate musical pitch, peer assessment, and gamification exercises, shows an effective combination of body, mind, and ear involvement in learning processes. Not only does this contribute to learning fundamental singing skills like posture, breathing, and intonation but also helps maintain engagement in younger students. The Voice group (ages 12-14) shows an intermediate level at which vocal health is one of the primary issues that need to be addressed because of the presence of voice change. Vocal health issues, such as the use of breathing techniques and imagery techniques in addition to discussion on vocal health, are signs of an attempt to prevent problems related to vocal health. This is in line with the literature on vocal health, which emphasizes the risks associated with adolescent voices and requires that proper information be given about their development process (Cooksey, 1999; Welch, 2006).

The Singers choir (ages 14-16), the difficulties inherent in dealing with adolescent singers are evident in the greater focus on communication tactics. Given the technical proficiency that the singers have reached, the role of the conductor is more about improving coordination than imparting new techniques. The embodiment of the “throwing” motion as a method for teaching breathing coordination indicates how complicated singing technique concepts can be taught using body movements. Furthermore, the care taken when considering the language used, specifically in giving clear directions regarding breathing technique and avoiding any confusion that may lead to unhealthy singing habits such as hyperfunction (Miller, 1996).

Latitudine (aged 15-17) is another example of how singing ability has developed to such an extent that tonal qualities and balance between registers become central aspects of practice. In exercises dealing with nasal sounds, vowel modification (aggiustamento), and gesture, Latitudine shows evidence of advanced techniques of resonance and vocal tract adjustment. In this group, students are guided toward developing control of their tone quality especially when making changes between registers.

With respect to the university-based group known as the Chorale, it is assumed that all members of the group have sufficient technical skills, and the teaching sessions are focused on expressive performance. The use of subtleties in gesture and interaction by the conductor encourages critical thought and artistic judgment among the members of the group. It is a step towards learning through discussion and collaboration, rather than being instructed directly, an indication of a higher level of musical instruction.

Warm-up activities conducted by each group followed a consistent format that was customized according to the development level of singers in preparing vocal apparatus and enabling optimal voice production (McKinney, 1994). Moreover, cool down activities were identified to take place among all choirs where there was a process of gentle vocal folds vibration (such as slight voice production and/or semi-occluded vocal tract exercises) along with physical relaxation of neck and shoulder muscles. It shows consideration on the part of choirs about recovering voices after the intensive rehearsals. On the other hand, while well-planned warm up activities are being provided to choir members, cool down activities seem informal and have relatively less emphasis among pedagogical techniques used. In terms of

vocal health and efficiency, cool down activities including semi-occluded vocal tract positions can be very beneficial for reducing effortful phonations (Titze, 2006; Stemple et al., 2014). The relative lack of such cool down processes for various age groups presents an opportunity for future improvement in choir instruction, especially when training occurs intensively.

The significance of the current study lies in the contribution of new information about choral pedagogy for literature on vocal teaching. Indeed, findings provided by the current study add information about pedagogical practices used at different developmental stages. In other words, the study suggests the necessity for pedagogical techniques to adjust depending on the age, prior experience, and physiological maturity of a singer. Thus, the current findings have important implications for conductors, music educators, and voice practitioners. Firstly, it becomes evident that physical movement, imagery, and vocal technique have great potential for developing vocal techniques. Secondly, vocal health education plays a very important role when a choral group engages in intensive rehearsals. Thirdly, the study illustrates that instructional language and gesturing influence the way singers perceive and understand vocal technique.

Furthermore, the study has practical utility for school choir programs, community youth choirs, and professional choral training settings. The findings may help conductors and educators design age-appropriate rehearsal strategies that improve vocal efficiency while reducing the risk of vocal strain among adolescent singers. The study may also benefit teacher training programs by highlighting the importance of pedagogical communication, vocal health awareness, and developmental sensitivity in choral instruction. In addition, the research contributes to broader discussions on adolescent music education by demonstrating how artistic achievement and vocal wellbeing can be balanced within intensive rehearsal environments.

There are multiple weaknesses characteristic of any qualitative research, and the current study is no exception. First, observations were conducted within one particular context, that is, one specific choral program. For this reason, it is possible to speak about applicability and transferability of the findings in question. Second, observations took place during a limited period of time, so it was impossible to make any conclusions regarding long-term effects of pedagogical techniques on vocal development in a choral setting. In this regard, a longitudinal study would be beneficial. Third, being purely interpretative and qualitative in nature, the study lacks objective quantified measures. For instance, it is impossible to measure objectively vocal production and efficiency using acoustic analysis and physiological tests. Fourth, no consideration is given to individual differences such as previous training and vocal maturity of participants.

Future research might be directed towards examining vocal technique and health education in a choral environment. In particular, a longitudinal design would allow drawing more comprehensive conclusions regarding effects of specific pedagogical strategies on singers' vocal outcomes. Experimental interventions would help find out whether certain approaches, such as the use of gestures, imagery, and breath training techniques, can enhance performance of choristers. It would also be reasonable to introduce an objective vocal analysis in terms of acoustics and physiology of singing. Besides, more research in terms of conductor training programs might become relevant because it would provide additional

insights into the development of pedagogical skills of conductors. In addition, cross-cultural research could become one of the topics of interest. Namely, it would shed light on the influence of educational context on choral pedagogy and vocal outcomes.

Conclusion

The research found that pedagogical methods used by different choir groups at various developmental stages showed distinct patterns of vocal teaching progressing in accordance with age, experience, and physiological readiness of singers. The youngest choir groups utilized specific multimodal and structured methods for the acquisition of basic skills such as posture, breathing, and phonation, while more mature groups displayed a tendency towards a more advanced approach involving interpretation. Warm-up exercises were conducted systematically and adjusted to meet singers' individual requirements, while cool-down procedures, although performed regularly, did not have much pedagogical input.

It is evident from the study that proper pedagogical techniques should take into account age and physiology-specific aspects of each stage of choir development. Moreover, efficient communication between the conductor and singers is essential for vocal progress and success of rehearsals. Finally, it can be concluded that vocal health issues need to be considered in greater detail, especially concerning adolescent singers.

Overall, the study demonstrates that effective adolescent choral pedagogy requires not only musical instruction but also developmental awareness, vocal health education, and adaptive rehearsal strategies. These findings provide practical value for conductors, music educators, and vocal practitioners seeking to create healthier and more effective choral learning environments for young singers.

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Ethical Considerations

All ethical aspects were taken into consideration during the course of the research. The experiment was held as part of an already existing educational programme. Moreover, only collective behaviors and teaching methods were considered and studied during the research, which meant that there were no personal data collected from individuals.

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