

Coloratura soprano vocal methods and vocal skills in China

Wu Ruijing and Warisara Rojanabut

Bangkokthonburi University, Bangkok, Thailand

Corresponding Author, E-mail : nicha.musiced@gmail.com

Abstract

Coloratura soprano, is a more unique type of soprano voice, mainly in the extreme high notes for some "showmanship" performance, light voice, flexible operation, can be light and free in the loud area to show jumping, gorgeous music color. The range is usually c1 to c3. Coloratura plays a decorative role in melody, which is light and flexible. In coloratura soprano works, this kind of difficult singing is often characterized by instrumentalization, including rapid cadenza forms, broken chord forms, and coloratura trills. This article presented the coloratura soprano vocal methods and vocal skills in China.

Keywords: Coloratura soprano; vocal methods; vocal skills; China

Introduction

Classification of coloratura soprano

Dramatic coloratura soprano

The dramatic coloratura soprano, a tone type developed in the second half of the 19th century, is a rare and scarce soprano voice, usually in the range of B-B2 or c3. The voice is flexible and powerful, the emotion in the middle and high voice area is warm and rich, sometimes smart running, sometimes erupting strong dramatic force; The emotion of the middle and low voice area is gentle and deep, the sound line is relatively thick, the word is strong, and each note is full, often using big jump intervals and exaggerated melodies to express passionate emotions, the model of the sound is also relatively large, the performance of the cadenza not only has dramatic power, but also makes people incredible flexibility.

Lyric coloratura soprano

Lyric coloratura soprano, is a relatively common type of soprano, the vocal range of c1~c3, the voice is light and soft, the breath is uniform and long, the line is full and coherent. This bright, delicate, sweet voice, which contains a young girl, can not only show the difficult coloratura skills incisively and vividly, but also express the delicate emotions of the characters in the opera. The lyric coloratura soprano has a smaller horn than the lyric soprano, and the voice is more focused and bright. The volume is weaker when singing in the low to middle register or even lower."

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Light coloratura soprano

The light coloratura soprano is relatively rare on the opera stage, the vocal range is generally c1~e3, the highest vocal range is about two full notes higher than the lyric coloratura soprano, can reach g3 or even higher. In terms of volume, the resonating cavity of the light coloratura soprano is smaller than that of the lyric coloratura soprano, so the volume of the former is smaller than that of the latter. This situation is not necessarily universal, but it is certainly special. Compared with the lyric coloratura soprano, the light coloratura soprano's "head resonating" uses fewer focal points, and the timbre is more concentrated, bright and slender. The lyric coloratura soprano "chest resonance" uses more sounds than the light coloratura soprano wider (Hannigan, 2017).

Coloratura teaching skills

Breathing exercises and control

In the book "The Art of Singing", there is a famous representative of the vocal school, Lamperti, she put forward: "The knowledge of singing is the knowledge of breathing", she also said: "breathing is the most important and necessary basis for good singing." To experience the use of breath, both physical and psychological experience should be combined, or satisfied at the same time. Psychological feeling is a person's own mental state, to maintain a positive and exciting mental outlook. Physiologically, the first singing stance is very important, it should be straight, and the muscles of the body are relaxed rather than stiff. Second, only a small part of the vocal organs can be seen, while the rest of the organs and muscle groups have to be imagined and controlled by the abstract mind of the brain. That is to say, students are required to combine psychological and physiological, as a teacher, we should always remind students to stand tall and straight, and inhale by yawning. This action will help students lift the soft palate, lower the larynx, and expand the space of the mouth. At the same time, the thorax expands outward. As you exhale, keep your entire upper abdomen steady, gradually draw in your lower abdomen, add a little force at the highest note and maintain an excited mental outlook throughout. When the high note goes up, the mind wants to sing down, there is a feeling of pumping the breath to the floor, when the high note goes down, the breath stays, the position hangs, the mind wants to sing up."

If you encounter a fast rhythm, high vocal area of the paragraph, requiring one breath to sing, can not breathe, if the singer does not have a good basic skills, good breathing and the ability to cooperate with the muscles of the body, it is difficult to complete it, may lead to sound deficiency or breath floating. Most of the students who sing this type of paragraph for the first time, when singing here, the voice will be empty, the breath will float, and even affect the intonation problem. In order to complete this type of coloratura sentence, we must first have the correct breathing, breathing is a very important step, we can not just because coloratura sounds light, flexible, free feeling, we can ignore scientific breathing exercises, control and breath maintenance. Here the student can imagine that the string is a string of pearls, and then think of the breath as the fishing line that strings these pearls together. Each sound is like a pearl: it has weight, mass, weight. Think of this as a pearl singing every note full and firm. Not only agile but also uniform and powerful. When you exhale, you feel your diaphragm against your lower abdomen.

Exhalation is the most important step of the whole breath, and it is also the most important part of singing. Exhalation is the process of breathing out and sighing, while maintaining the same state as breathing in, so that the breath flows instead of being frozen. When exhaling, it is not only necessary to let the chest ribs expand outward, but also to find the waist and the back strength connecting the waist as support, driving the sound, which can make the breath deeper and increase the duration of the breath. Breath control is the process of keeping the breath after the breath is absorbed, the waist, abdomen and ribs continue to expand outward and maintain the breath. In the process of teaching, students can do breath training of "slowly inhaling, stopping inhaling and slowly exhaling". Each step takes five seconds, the first step inhales slowly, and the lower abdomen slowly bulges up. Do not breathe in but think about the feeling of breathing in, hold for five seconds, the third step, slowly breathe out at a constant speed, the initial feeling of controlling the breath. After that, you can change from silent practice to sound practice. During this process, you will obviously feel that there is an opposing force between the waist and abdomen. The opposing point is the fulcrum of breathing, which you can feel with your mind. Only when breathing reaches a relatively stable and controllable state, can you sing some difficult colorado-soprano works (Peng, 2020).

Maintenance and adjustment of resonance position

The popular meaning of "resonance position" is "the place that generates resonance sound and timbre". In order to create a good resonance effect in singing, we need to adjust the following three points in the mind, moderate deep breathing to support the correct vocal position and accurate resonance position. Not only one or both of them, but also both of them. Here are a few ways the singer can train as a reference:

First, singing from an imaginary "high position". Find the yawn state, when you will feel the increased space in the throat, this way will make the larynx lower, softer and higher, so that the sound will have a "standing up" effect.

Second, relax your jaw. The jaw should open comfortably and smoothly, sagging under its own weight rather than being forced to open. Students should open their mouths as comfortably as possible without obstructing the throat.

Third, relax the lips. When the jaw is naturally loosened, the lips should be in a normal and free state, and the lips should not be strained and thin due to physical or psychological tension, because this uncomfortable state will affect the state of the throat and pharynx, so that the singing of the coloration phrases becomes rigid and inflexible, so the relaxation of the lips is very important.

Fourth, practice with the hum, whether it is open hum or closed hum, yawn, let the inside of the mouth stand up, keep the throat and cavity open, relax the jaw and lips. Hum can understand the resonance position and resonance acoustics.

Fifth, as the vocal range changes, the position of resonance needs to be adjusted. The sound should change with the change of music, including timbre, volume, vocal range, and the change of various words or different vowels and consonants, otherwise the sound will become inconsistent and affect the sound effect.

Adjustment of different vowel positions in different vocal areas

In different vocal regions, the resonance positions of different vowel letters are on the pharyngeal wall of the oropharyngeal cavity, but the focus positions of reflection are different. In Italian, there are five vowels: a, e, i, o and u. The following takes these five vowel letters as an example to clarify the positions of the five vowel letters in the middle and high voice areas. In teaching, students should try their best to understand the positions of different vowels in different voice areas.

The resonance focus of a is at the midpoint of the upper mouth cover, neither back nor front; The resonance focus of the reflection of e and i is on the hard lid, and the whole feeling is covered; The resonance focus of the o and u reflections is on the hard jaw at the front of the upper oral cap, with u in front of o and o in front of a. The resonance foci reflected by o, u and a simultaneously sound in two areas, one in the hard jaw of the upper lid, one in the nasopharyngeal cavity, o is slightly backward than u; The echo points of e and i both appear in front of the pharyngeal wall of the nasopharyngeal cavity, slightly ahead of the u vowel. The resonance focus of the reflection is in two places, one on the hard lid and the other at the very top of the brow.

Skill training methods

Trill training: Coloratura trill is an even, slightly quivering sound that represents excited emotions. It's a fast, vibrating ornament to an extended sound. In order to sing a beautiful, quivering song, we need to rely on the psychological hearing function. In the course of practice, rely on auditory memory to imitate the trill. First of all, let the student's jaw, tongue, base of the tongue, and front neck relax, which can avoid interference from excess forces outside the vocal cords. Consider using the u sound, thinking of the body as an empty bottle, to create a resonance in the chest cavity. Trills require a high head sound and deep breathing. In the process of practicing trill, because the amplitude of the sound is too large, or the sound vibration speed is too slow, it will cause the sound to swing. Therefore, in the practice, we must first solve psychological problems. To solve the problem of sound swing, you can first sing the sound as a straight sound, rather than extending the time value in the process of vibration and shaking. The psychological and physiological process of vocalization is always relaxed, in the case of relaxation, to use the vocal cords, neither more nor less, whether it is to avoid the vocal cords or excessive use of the vocal cords, will cause a swaying sound. When the smooth and moderate breath passes through the vocal cords at a uniform speed, the sound generated at the sound will stick to the pharyngeal wall and be transported to the pharyngeal cavity and nasopharyngeal cavity at the same uniform speed. At the same time, I feel that there is a stream of air from the chest, through the chest and abdominal cavity to the center of the earth. This feeling of the opposite movement of the breath down and the sound up will cause the sound to appear even slightly.

Rhythm training: The grasp of rhythm is the most basic musical accomplishment of the singer, and the rich rhythm type is the expression of different styles of music, different rhythms and different emotions. Therefore, the singer should not only be trained to control the voice, but also need to master the ability to control the rhythm.

As we all know, the coloratura and trilling parts in coloratura soprano works are difficult, leading many vocal learners to only focus on whether the breathing of these two coloratura skills flows smoothly, whether they maintain a high position, whether they are grainy, and whether the sound is full, but ignore the rhythm training of coloratura. In the process of vocal music teaching, when students sing cadenza, due to the high speed, high

breathing and enunciation requirements, many students put emphasis on breath and enunciation, while ignoring the rhythm link, the rhythm will appear uneven or fast and slow, and sometimes make people's voice and piano accompaniment can not match, which requires singers to be familiar with the correct rhythm type. You can use a metronome for training, or use gesture swings for auxiliary exercises, and need to practice slowly.

Psychological quality training: To master the difficult colorization skills, singers should be active and relaxed psychological state throughout the singing vocal works. All complex coloratura phrases and melodic intonation are produced from the mind, so we must sing with the "heart", the psychological singing elements dominate everything. If vocal music learners want to sing well, the psychological quality in the practice process is particularly important, and it must be the combination of psychology and physiology. Their relationship is like individuality and universality in philosophy. Psychology seems to be the universal, physiology seems to be the personality. Individuality is restricted by commonness, and commonness exists in individuality. The two can be transformed into each other. In other words, the characteristics of each person's voice are different and have their own personality, but the singing state needs a common, positive, excited, and strong desire of the mental state is more conducive to singing. When the students sing to a wide range of cadenzas, and the students' skills are not good enough, they are afraid that they can not go down the bass and cannot go up the treble. If it is a vocal music class, first of all, we must abandon the face problem, boldly communicate with the instructor in advance, admit that they are nervous, worried about technical problems, afraid of no voice in the low voice area, broken voice in the high voice area, and the instructor will help students carry out psychological counseling and warm-up training before class. Secondly, before taking vocal music classes, we should do a good job in psychological construction, actively mobilize their own psychological state, and give themselves positive psychological suggestions. Finally, strengthen the practice of weak links in the middle and low voice area and high voice area after class to enhance self-confidence. If the competition or performance, the students are still nervous, before singing can open the mouth, open the mouth, open to the limit, relax the facial muscles, and then do a chest expansion exercise to relax the body, practicing from their best vocal range, and then strengthen their most worried about the few lines of the colouring verse, will relieve some psychological tension. In vocal music teaching or competition, performance, students often have good and bad times, many of which are caused by psychological factors. For example, the difficult passages are not well trained, the technology is not good, resulting in no confidence, too want to get a good performance feedback or competition ranking, so that emotional instability, physical discomfort or other external factors, etc., in such a case, the quality of students' classes, performances and even competition results will be less than ideal. This requires teachers to pay attention to students' daily learning and the situation before class, performance and competition, timely communication and teaching adjustment, but also need to strengthen the training of students' psychological quality in teaching.

Teaching principles of coloratura soprano singing skills

Principle of vocal music teaching according to aptitude

Because people are born with different singing organs, and each person's understanding, voice characteristics and psychological quality are also different, teachers should have a wise vision to identify individual differences of students, and adopt different teaching methods according to the specific conditions of students. The student's personality characteristics, as well as potential to tap out. First of all, have a correct understanding of their own voice, various types of coloratura soprano singers will sing the same piece, such as Grubelova, Anna Netrebko, Cao Xiumi, these are different types of coloratura soprano singers, Grubelova is a light coloratura soprano, Anna Netrebko is a dramatic soprano, Because she can also sing many coloratura soprano works, it is also known as the dramatic coloratura soprano. Sumi Cho leans toward lyric coloratura soprano. Songs requiring coloratura skills require students to sing with a sense of lightness and flexibility, while the middle and low voice areas need to be full of strength. If a dramatic coloratura soprano sings, the coloratura parts are a little bulky; if a light coloratura soprano sings, the middle and low voice areas are not strong enough and the volume is insufficient, which requires teachers to timely adjust training methods according to the works. Make the singer perform the song better. Different teaching methods can be used for the middle and low voice area and the high voice area in a song. When training the high voice area, the fast scale of sixteenth notes can be used as the vocal melody, with more resonance in the head cavity. The low voice area can be used with more resonance in the third and fifth degree of training. The different states and feelings of practicing singing songs in high and low areas are applied to coloratura works respectively (Jia, 2022).

Teaching also need to pay attention to some different situations, such as some girls speak small and gentle voice, singing voice is like a bell, some girls just the opposite, speaking voice is bright and crisp, singing voice is leaky, empty. The former is likely to cause the treble not to go up, the throat is too big, with some unnecessary muscle strength, it will be mistaken for a dramatic colorado-soprano, the latter is too much breath, too much falsetto, the vocal cords are not closed normally, which will lead to no sound in the middle and low voice area. In this situation, it is not only impossible to accurately determine the type of coloraria soprano, but also likely to have a deviation in the definition of voice parts. At this time, students should be patiently guided and corrected. Through scientific vocal training methods and psychological guidance, we can get accurate identification of coloratura soprano types. Some students' singing level, according to the teacher's judgment, has the technical ability to sing more difficult songs, but it may be due to the psychological quality of students or other external reasons, resulting in a fear of difficulty, resulting in a lack of confidence, unwilling to learn it. At this time, the teacher should carry out spiritual communication and psychological counseling, if there is still some fear, then the teacher can appropriately adjust the choice of songs. In this case, students are taught according to their aptitude. Vocal music teachers should give different teaching methods according to students' different teaching problems. Choose suitable works according to different voice characteristics of students; According to the different stages of students and the stability of psychological quality, choose different teaching materials; But also according to the content of the work, inspire different emotions and so on. This is not only conducive to the further improvement of coloratura soprano singing skills, but also conducive to the development of coloratura soprano vocal music teaching.

Principle of gradual vocal music teaching

Without thousands of times of practice, without the accumulation of works from simple to complex, from easy to difficult, it is impossible to reach the ideal singing level. Not to mention acquiring the difficult technique of coloratura singing. In the process of vocal music teaching, we must follow the gradual method, and students at each stage should carry out different teaching methods, so that the volume of students from zero, from the wrong way of singing to the scientific way of sounding, from the unstable treble to the use of coloratura is the criticism of every vocal music teacher. Methods and performance are described in three different stages.

For beginner coloratura sopranos, practice some rapid scales of third and fifth, ranging from d2 to c1 and then from c1 to g2, usually no more than g2, depending on the student. Having the foundation of good middle voice area is the premise of producing high quality loud voice area. Beginner students can learn songs with a lower vocal range, and coloratura techniques are not as difficult. The middle stage colorato-soprano, they basically have the right sound concept, the vocal range can be extended to the high voice, practice the fifth octave of the scale running and jumping, depending on the student's situation, the vocal range can be from c1 to c3. During the training process, through the adjustment of breathing, resonance, language, etc., strengthen the middle voice area, focus on mastering the resonance skills, and develop a good timbre, and the sound is natural and relaxed. At this stage, students can sing most of the colorato-style songs completely, but a lot of colorato-style running may consume more physical strength, and students will feel powerless when singing to the second half of the song, which needs to spend about a year to practice before there will be a breakthrough.

The coloratura soprano in the advanced stage, with the strengthening of the middle voice area, the sound is relaxed, and the timbre is beautiful, so it requires that the low voice area, the middle voice area and the high voice area have a unified resonant overtone timbre. Vocal music can have a running scale of 11 degrees, up to c3. Jumping exercises vary from person to person, ranging from e3 to g3. When learning colorado-style skills, students at this stage should not only master vocal singing skills, but also study the creation background and related theories of works, and pay attention to stage practice ability. Students at advanced stage can sing colorado-style songs more completely and smoothly, and can complete the high-pitched and colorado-style parts better than students at intermediate stage. On this basis, the coloratura part and the high voice area are further strengthened.

In short, the process of learning vocal music must be "from easy to difficult, from simple to complex" law, training different degrees of coloratura soprano, not only the method is not the same, the choice of works is also different, coloratura soprano works can be selected from the primary Scarlatti art song "Violet", Mozart aria "Do you know", etc., to the intermediate stage, Johann Strauss's arias "Please Listen to the Marquis," Mozart's arias "Don't know What You've Done," and finally Mozart's "Hallelujah," Verdi's "A Kind Name," Donizetti's "How Silent It Is Around." Teach students according to their aptitude and step by step (Wei, 2005).

Teaching methods of coloratura soprano in China

Coloratura soprano is the product of the historical development of Italian Bel canto singing in the European classical music period (17th and 18th centuries). It is a special term for the soprano part of Bel canto singing. It is a special branch of the soprano part of Bel canto singing and a special vocal technique and singing style. In Chinese artistic singing, this

soprano is the most delicate, the most flexible, the most artistic charm, the best performance soprano characteristics of soprano voice, soprano vocal range is the highest and the most light of a showy technique singing. Coloratura soprano in classical music has a unique technique of coloratura, that is, it is mainly manifested in the high register of show-off singing and breathing skills, and its large volume and enduring endurance. The famous Chinese music historian Pan Chaji (1840-1904) once made a very incisive discussion and vivid description of the vocal skills, personality characteristics and singing style characteristics of colorado-style soprano. He once exclaimed: "What kind of singer! You can imagine a sound that has the sweetness of a flute and the warmth and peace of a human voice, a sound that is at once easy and smooth and coherent, like a lark flying through the infinite sky, reveling in its own world of flight, up and down, with the same ease and coherence, without the slightest sign of strength or of cunning and cunning. It transforms the emotional message into a sound at once, and lifts the soul on its emotional wings into the infinite sky." This description is simply like a living landscape, lifelike, vivid, the characteristics of coloratura soprano to describe vividly, giving people infinite charm, beautiful pleasure (Wei, 2005).

Characteristics of coloratura skills

Coloratura sopranos are best at singing bounces, leaps over large intervals, fast ornate songs or continuous skipping phrases. Coloratura soprano has a colorful, brilliant sound color and beautiful gorgeous voice, and has an amazing super high note, the general high note can exceed f3, f4, and even up to f5, can freely express gorgeous, charming and graceful musical color in a wide range:; Coloratura techniques are characterized by gorgeous and rapid scale progressions, broken chords, homophonic repetitions, and stops of wide intervals, including various grace notes, such as staccato, trill, stop, glissando, echo, etc. Although the volume and intensity of coloratura soprano is not very large, but the fine gossy-like voice is light, clear, bright and crisp, which can penetrate various voices and huge symphonies, flying to every corner of the theater and shocking people. Coloratura soprano refers to the soprano with coloratura technique in bel canto singing, in other words, it is mainly singing in the high register. Coloratura soprano has a higher vocal range than the average soprano, a light, flexible, colorful voice, similar to the nature of the flute, good at singing rapid scale stops and decorative ornate tunes, to express happy, passionate emotions or express the ideal of the chest (Ying, 2022).

Relationship between vocal methods and voice use

The method of vocal singing refers to the technique of individual use of human voice. Although the human voice sounds from a physical point of view is because the breath hits the vocal cord vibration and produces vibration sound waves, through the resonance of multiple resonating cavities. The human voice is produced, and then the human song is produced through the music carrier. Everyone's song seems to be the same basic sound principle, but because of different application skills, it will produce ever-changing sound effects. Vocal methods in singing refer to the individual characteristics of vocal methods and methods shown in the process of vocalization, which are specifically manifested in the use of breathing methods, the use of the shape and size of the resonating cavity and the use of the resonance focus, the use of vibration methods in the vocal cord parts, the use of true and false sound components and the use of adjustment methods, and the use of vocal cord movement methods. Different application methods produce different sound effects and personality characteristics.

Coloratura soprano vocal methods and vocal skills

Scientific application of breath

In the process of singing breath movement, coloratura soprano has its unique personality characteristics in the use of bouncing breath skills: Breath movement has the characteristics of intermittent interstitial, breath movement, requires the breath to have light, fast, sensitive, concise, concentrated precise functions, effective impact on the vocal cord vocal pause of the moment breath requires the control (breath brake) . Just like the brake of a car), steady (smooth, no shaking, without the slightest noise), accurate (precision, agility, strength, time interval precision is exquisite, just right, in fact, the essence of the breath pause is a state of choking). This breath movement technique produces dexterous, lively, smooth and round, gorgeous, crisp melodious, short, scattered bounce sound. The sound of larks singing.

Bouncing mode and regulation skills of diaphragm

Coloratura soprano in singing coloratura hop, its diaphragm movement mode and regulation skills generally have two basic characteristics: First, the slow or relatively slow jumping method technique is mainly the interstitial bouncing movement of contraction and expansion of the lower abdominal dantian muscles (while the diaphragm is in a relatively static state at this time), so that it is evenly and interstitially aspirated to impact the vocal cords to produce sound, the breath fulcrum is relatively deep, and the moderate regulation with Dantian as the center of the breath source has the characteristics of steady and calm. Second, the rapid jumping mode is the most skilled, or dantian as the breath source control, but its movement is the opposite of one of the above, at this time, the Dantian muscles are in a relatively static state, while the diaphragm muscle group does rapid, sensitive and uniform vibration, that is, subtle beating, effectively control the breath interstitial movement impact on the vocal cords. Produces a highly sensitive hop sound (Wenyuan, 2019).

Regulation and scientific application of resonator

Coloration bounce mainly uses pharyngeal cavity to produce head cavity resonance and resonance, and almost does not involve the mouth and nasal cavity, which forms a strong acoustic smoke wall reflection phenomenon, resulting in high frequency overtones. This phenomenon and principle must require: first, must use the word "ha", "ah" or "oh"; Second, the pharyngeal cavity must be fully opened to form an unobstructed, upright passage, because these three references do not need to have entestation links.

The relationship between resonance and pitch: from a physiological point of view, the level of the voice is related to the vibration frequency of the vocal cords when singing. The vibration frequency is high, the number of vocal cords opening and closing is more, the higher the frequency, the higher the sound, and the lower the vice versa. Sometimes after the concert, we often hear the discussion of various singers, the most comments are "the actor sings a really high note", "his voice is really called bright" and so on, indicating that people have requirements for the height of the voice in singing. But that doesn't make the prickly sound right. In the practice of treble, some people mistakenly think that with a strong "shout" singing, you can sing the voice higher, this idea is wrong. Singing high notes requires the correct use of the head cavity resonance with diaphragmatic breathing support.

The relationship between resonance and volume: the variation of volume is one of the performance techniques of singing. The intensity of the sound is determined by the amplitude of the vibration of the vocal body. Big amplitude sounds strong, small amplitude sounds weak. (Some people mistakenly think that a strong sound is a high voice, and a weak

sound is a low voice, but it is different); There are also people in the pursuit of a very loud voice, mistakenly using this strong and loud voice to sing the effect is good, this idea is wrong, strong is relative. Therefore, in singing, it is necessary to achieve both strong and weak according to the needs of the content and performance of the song, and such changes are more natural. In the melody of music, strong and weak symbols are often used to express the change of volume. Such as P, PP, PPP, f and other singers on the mind to remember the strong contrast and expression of feelings. Don't go overboard with the loud volume, it will cause bad results. In short, these changes in resonance acoustics require students to use flexible and flexible resonance skills, and adopt a unified mixed resonance, in order to give people a full and rounded feeling. In the process of using strong and weak voice skills, the lighter the voice is used, the higher the position of holding the singing.

The relationship between resonance and timbre: Timbre is a property of sound that results from the difference in the sound of the vocal body. Timbre is determined by many factors. Physiologically, everyone's vocal cords are constructed differently, and their singing sounds are different. The resonance effect in a variety of resonating cavity has its own characteristics, and it can sing a variety of different timbre sounds, so the timbre is the main skill to express the thoughts and feelings of the song.

The ability to master various timbre variations is important. In singing, it is necessary to skillfully use the proportion of various resonance and adjust it according to the requirements of each voice area in order to sing a beautiful timbre. Because the scope of the resonating cavity is very small, as long as a slight move, the timbre changes immediately, so when adjusting the resonance, we should pay attention to the sense of proportion. The "bright" and "dark" timbre are the basic colors of singing performance. Head cavity resonance plays a major role in the "bright" and "dark" timbre. Bright tone can show joy, cheerful, excited, upward and other emotions; The dark tone shows bitterness, sighing, melancholy and anger (Xinyang, 2021).

Conclusion

To sum up, singing state, singing skills and innate voice conditions will all have an impact on the voice of Bel canto singing soprano, and some soprano learners are often affected by some factors to form some wrong sound concepts and use some wrong singing skills. To solve these problems, teachers and students should base on the unique characteristics of soprano, actively explore and practice correct learning and training methods, and overcome their own wrong ideas and bad habits in daily learning and training, so as to achieve effective learning.

References

Hannigan, B. (2017). *The artistic Characteristics and Analysis of Singing of Coloratura Vocal Works*, [Doctoral dissertation]. University of Verona.

Jia, C. (2022). *Research on the application of coloratura soprano communication skills in vocal music teaching*, [Master's thesis]. Sichuan Conservatory of Music.

Peng, L. (2020). *Art education*. China Culture Media Group.

Wei, Z. (2005). *Chinese vocal music education in the 20th century*, [Master's thesis]. Shanxi Normal University.

Wenyuan, C. (2019). *Investigation and research on coloratura technique in vocal music teaching*, [Master's thesis]. Central China Normal University.

Xinyang, C. (2021). *The evolution and application of coloratura in Chinese vocal music works*, [Master's thesis]. Shenyang Conservatory of Music.

Ying, W. (2022). *The application and singing of coloratura technique in national vocal music*, [Master's thesis]. Xi'an Conservatory of Music.