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Investigation and Reflections on Gender Differences in Vocal Music Education

Ming JIANG¹, Chao-Jung WU²

Abstract

The purpose of this study is to explore the teaching methods and related theoretical studies of gender differences in *bel canto*. Focusing on four aspects: breathing, vocalization, resonance, and emotional expression, this study implements vocal music through gender-differentiated teaching methods and strategies. By carrying out a case study, the author summarizes the application and effectiveness of these teaching methods in the teaching of *bel canto*, and draws the following conclusions based on the research results: first, teaching methods tailored for gender differences enable students to make rapid progress in singing, breathing, vocalization, resonance, and emotional expression; their goals of learning vocal music are clearer. Second, the gender-dependent teaching methods promote the amelioration of vocal music teaching, break through the difficulties in practical teaching, and improve the teaching level and ability of instructors. Finally, this article puts forward teaching and research suggestions for vocal teachers and vocal education.

Keywords: vocal education with gender differences, vocal teaching methods, *bel canto*, evaluation.

Introduction

Bel canto is a singing style born in 17th century Italy. Among the various vocal performance arts in the world, *bel canto* has an important historical role and far-reaching influence. In China, the subject of vocal music uses *bel canto* and a series of sciences of voice for more than one hundred years as the basis of vocalization. In addition, it takes vocal music pedagogy, aesthetics of vocal music, vocal musical psychology, historical science of vocal music and linguistics as the

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important components of the educational theory of the vocal music discipline (Beegle, 2010). The process of vocal music education is rather abstract, so the leading role of vocal music teachers in teaching is more prominent than those of other disciplines. If the teacher does not master the concept of singing, their teaching will fall into misguidance (Bergee, 1987). In many typical and art colleges, male teachers lack the experience of teaching women, while female teachers lack the experience of teaching men, which has caused a decline in the proficiency of vocal music education (Brophy, 2005).

There are numerous textbooks and related works on vocal music learning, but the literature on gender as a factor in teaching is mostly vague and fragmented. There are few resources that specifically distinguish different ways of singing between men and women, making it difficult for readers to understand descriptive concepts. Especially, the in-depth studies of specific teaching methods and strategies are rarely found. The researchers selected four elements of vocal music education and conceived a case study to explore the teaching strategies of gender difference. It is intended that the research results and relevant suggestions in this article can be beneficial to vocal music education. The purposes of this article are as follows: (1) Integrate existing theories about the gender differences in vocal education; (2) Make up for the deficiency of the implementation plan of vocal education; (3) Diversify teachers' vocal teaching methods and means; (4) Improve students' goals in clarity and the effectiveness of their learning methods in the process of learning vocal music; (5) Address the problems in the male and female students' voice through specific vocal music works, so that singing can be improved, enhancing students' self-confidence in learning and singing. Supplement and correct the problems raised by the students to improve the teaching efficiency through the after-school feedback.

Literature Review

Related research on physiological factors

Vocal Cords: Giovanni Battista Mancini, the representative of *bel canto* in the 18th century, pointed out that the difference of voice between male and female lies in the length of the vocal cords. Female voice is an octave higher than male voice (Burnard, 2002). Modern research further shows that voices between male and female begin to change significantly during puberty. After the period of voice changing, the length of male's vocal cord reaches 29 mm and female's reaches 21 mm (Corbeil, Trehub, & Peretz, 2016). Female's vocal cords are shorter than male's, and the frequency of vocal cord vibration is higher. Some studies suggest that females possess a more breathy voice than males. This is related to how closed the vocal cords are when women vocalize, and the gap in the back of female's vocal cords (Coulson & Burke, 2013).

Vital capacity: Gruenhagen & Whitcomb (2014) tested that the male's vital capacity is generally about 4000ml-6000ml and the female's vital capacity is generally about 2000ml-3000ml and the vital capacity of male is almost double that of female. Male voices and female voices are not exactly the same in the use of breathing. Medical professionals found that men breathe more naturally with abdomen, while women breathe with their chest because of physiological differences. Therefore, it is not necessary to require male and female singers to take the same deep breath, which may cause damage to the body (Guilbault, 2009).

Sound intensity and range: Sound intensity refers to the strength of sound. Hickey (2015) proposed that sound intensity of female is about 50-80 dB and male's sound intensity is about 60-90 dB. The sound intensity is related to the breath and adjustment of resonant cavity. The range of the soprano is generally c1-c3-f3; the range of mezzo- soprano is g-a2-c3; the range of tenor is c1-bb2-c3; the range of baritone is about g-g2- a2. The above analysis and comparison of the sound patterns of male and female voices allow us to distinguish the differences between physiological structure and acoustics, and provide us with the theoretical basis for using various training methods for singing and treating them differently (Higgins and Mantie, 2013).

Related research on theory

Register: Mancini clearly advocates that each voice part of men and women can be divided into two registers (Koutsoupidou, 2005). Kratus (1995) believes that women have three registers and men have two registers, and the three registers of female voice from low to high are chest voice (*petto*), artificial voice (*falsestto*), and head voice (*testa*), while there is no *testa* in male voice. Luo (2005) emphasized that female voice has three registers including *petto*, *falsestto* and *testa*. The *petto* of all *alto* and *mezzo-sopranos* must not exceed f1 or #f1, and the *petto* of soprano cannot exceed e1 and f1. The upper limit of all female voices is #f2. In general, f2 can be regarded as the highest tone in *falsestto*. At present, the academic circle generally divides the male and female vocals into three registers.

The spot of voice changing (Passaggio): In the effective range of human voice, there will be an obstacle at the demarcation point between two registers. If an untrained voice tries to sing through the transitions between the registers without special techniques, the sound will break. Therefore, when learning the spot of voice changing, it is crucial to memorize the notes of the pitch where the *passaggio* is located. Benchu Zou believes that the *passaggio* of tenor is #f or #f2; the baritone is b e2 or d2; the soprano is f2 or #f2; the mezzo-soprano is b e2 or e2 (Monk, 2013).

Resonance: When male voice tries to use *testa*, it is not the *falsestto* in the standard sense. People often mistake this kind of voice for *falsestto*, and it is not the faint voice sometimes heard when tenors sing those extremely high tones. This voice is produced by using the medium register. Male teachers should learn to

understand and recognize *testa* and *falseto*, otherwise he will not be able to teach alto and soprano students how to use it (Pawson et al., 2005). Generally speaking, male voices use a chest voice, when speaking normally, and rarely use *falseto* and head voice, so they should practice the latter more. Female voices are on the contrary. The state of light engineery is usually used when speaking, and the state of heavy engineery is supposed to practice more to make the sound powerful and full of metallic quality in the register of middle and low voice.

Related research on non-physiological factors

Empathy refers to the ability of individuals to share and understand the emotional state of others in the process of interacting with people, including cognitive empathy and emotional empathy. Studies have found that women are more likely than men to have empathy for the suffering of others (Pitts, 2004). In addition, women often use mirror neurons to perceive the others' emotions (Rabinovitch, Cross, & Burnard, 2013). It is precisely because the subjective experience is stronger, so the level of empathy expressed by women is higher than that of men. This shows that females are better at expressing emotions than males. During the performance, singing is considered as the most feminine activity. Women are rarely suppressed in their ability to show singing (Sawyer, 2006). Many studies indicate that male students' desires to sing or participate in choirs is low, and singing is considered a feminine music activity, so male students generally do not like to sing in school music lessons (Silber, 2005).

The above literature reviews above mainly analyzes the distinctions in singing due to gender differences, which shows that gender differences in teaching is extremely significant. This article will focus on the four aspects of breathing, vocalization, resonance and emotional expression, and uses the teaching method of gender difference to conduct case studies, observe, record, and summarize the results.

Methodology

This study focuses on the nature of research, basing on qualitative research. The researchers explore the problems and solutions encountered by whom through the educational strategy and teaching methods of the case study, and then through the literature review and students' feedback after class. In addition, a set of research tool - evaluation scale - is used to test the effectiveness of educational strategies. While the researchers are conducting the study, they first select the evaluation scale cataloged in this research, and then analyze the educational strategies of this research. Beyond that, this study also compares teaching plans with students' feedback to increase the validity of this research. In order to improve the reliability, two experts and professors are invited as observers to check the evaluation scale of

this study and provide their professional opinions and suggestions in the process of observation and research.

Research design

Based on the syllabus and teaching objectives and requirements of the major of vocal music education in undergraduate universities and colleges, this study formulates different teaching plans for male and female vocal music teaching, and explores the distinct teaching methods of gender differences in breathing, register, resonance and emotional processing. Each course and teaching plan is made for one-on-one teaching. The teaching object is a total of six undergraduates with three males and three females in different voice parts under the guidance of the researcher's school. The period is 14 weeks, from September 8, 2018 to December 15, 2018. The basic situation of students is shown in *Table 1*.

Table 1. Students' basic situation

| Subject | Gender | Voice part | Grade | Advantage | Disadvantage |
|---------|--------|---------------|-----------|--|---|
| S1 | M | Tenor | Junior | Study assiduously | Develop many bad habits in the process of learning because the former teacher is not professional |
| S2 | M | Baritone | Sophomore | Good vocal condition | Lack sufficient experience and self-confidence |
| S3 | M | Tenor | Freshman | Study extremely passionately | Taken voice lessons half a year before and now be in the level of singing in natural voice |
| S4 | F | Soprano | Junior | Flexible treble | Have a poor health and insufficient vital capacity so that sound intensity is not enough |
| S5 | F | Soprano | Junior | Tiptop vocal condition | Have difficult in singing treble |
| S6 | F | Mezzo-Soprano | Sophomore | Timbre is deep, booming, mellow and full | The register is narrow, the degree is low and competence of singing is not enough |

After identifying the theme of studying different teaching methods for men and women, the researcher discussed with the jury of experts about the verse for vocal practicing and compositions suitable for their registers and competence of singing as specific vehicles for research. Songs have been chosen from both Chinese and Western vocal music works, so as to show the teaching situation and research results more realistically and comprehensively. Male students' songs are *Recondita armonia*, "Swan Geese", and "Your Love". The female students' songs are *Vissi darte, vissi d'amore*, "Prairie in July", and "Leisurely Years".

Brief introduction of researchers and experts

In this study, the researcher Jiang is both an observer and teacher. The researcher is a soprano and a professor of vocal music who has been engaged in vocal music teaching for nearly 30 years and is serious in teaching and greatly attentive to educational strategies. Professor Yang: Former dean of Art Institute of North University of China. He was the winner of the Bole Award of the 5th National Youth Singers' Competition of Wuzhou Cup and the educational award of first prize of the National Singers' Competition of Music library in *bel canto*. He is a pioneer who created the breathing method combined with nose, mouth, waist and abdomen, and presented the theory of "three supporting points" and so on. Professor Zhang: He graduated from the Opera Department of the Chinese Conservatory of Music in the 1960s. His students have won the first prizes in the international and national vocal music competitions. He is regarded as the talent scout in the vocal music circles and successfully held many individual student concerts.

Research tools

Evaluation scale of juvenile vocal music technique: In order to understand whether the subjects' competence of singing improved after receiving 14 vocal music lessons, we refer to the evaluation scale designed by Kenneth H Phillips for juvenile vocal music technique²⁴ as the basis for this study. There are five essential practices of singing in the scale designed by Phillips, including respiration-training, phonation-training, resonant tone-production, dictionary-training, and expression-training. According to the needs of this study, the evaluation scale of juvenile vocal music technique was used as a model to adapt the evaluation scale of singing skills suitable for this study. The researcher ticks during each class in line with the degree of conformity.

Table 2. The students' feedback form after class

| The week | | The week | Student's name |
|----------------------|---------|---|----------------|
| Date | (Y) (M) | (D) | |
| Research project | | The content of questions after this class | |
| Breath | | | |
| Vocalization | | | |
| Resonance | | | |
| Emotional processing | | | |

Results

Teaching results of male students

In the aspect of breathing, because boys' vital capacity is generally larger than girls', and the duration is relatively longer, male voice are more accustomed to use abdominal respiration. But when using abdominal respiration to sing treble, the breath will disjoint from the sound. Pay attention to the breathing method combining with the upper chest and the belly. In the aspect of sound, generally speaking, the tenor's *passaggio* is f or #f, and the baritone's *passaggio* is b e or d2. Male voices need to use "closed tones" for training at the register of voice changing. "Closed tones" means to open the cavity, especially the pharyngonasal cavity. Mainly with head voice, it is a feeling of yawning to hold treble just like there is someone lifts your back side of head upward with hands. In the aspect of resonance, the resonant cavity of the baritone is mainly chest resonance, but one must pay attention to the training of *false* and *testa*. In the high-pitched register, the resonance of the nasal cavity, sphenoid sinus, and the cavity of frontal sinus should be used more. The sound is concentrated between the eyebrows and above. In the aspect of emotional expression, boys must have good talent of artistic performance if they want to achieve the unity of form and spirit when singing. At ordinary time, they should usually wink in front of the mirror, make various expressions such as joy, anger, sorrow and happiness, and earnestly experience the various expressions using the eyebrows. Then, in front of the mirror, the emotions of each aria of the opera characters are practiced with facial expressions.

Teaching results of female students

In terms of breathing, female voices are more likely to use the method of thoracic breathing when singing. However, thoracic breathing is a wrong breathing method, resulting in insufficient breath of voice and difficult breath during singing. The correct breathing pattern is the breathing method combining the upper chest and the belly. In terms of sound, the *passaggio* of the soprano is f or #f, and the

pitch limit of the natural sound of the female voices of various voice parts is c or #c. When singing the *pasaggio*, there will be an obstacle, so the female voice should sing with holding the sound in the register of voice changing. The voice should be vacant as if there is a feeling of mixing *false* *setto* that is a ficto-facto voice. At this time, the resonant sound entered the nasal cavity and the head cavity. In terms of resonance, soprano is easier to find the resonance of head voice than tenor, but the use of resonance of chest voice can directly affect the quality of singing. To be an excellent female singer, it is essential to know how to use chest-resonance. In terms of emotion expression, females have stronger empathy than males, so they are better than male voices in expressing emotions. To better express the emotions of vocal music works, one must attach importance to the body performance on stage. In addition, we must constantly practice vocal music skills, observe more vocal music performance, and enhance the practical ability at stage.

Discussion

Teaching about breathing

Boys and girls have different heights and vital capacity, so the amount and the depth of inhalation, and the length of time they hold are different. Therefore, it should be treated differently when choosing phrases and periods for practice. For female voices, it is advisable to choose the compositions with graceful, lyric and mild melody and shorter phrases for practice. While for male vocals, it is better to choose the practice chapter with longer phrases as a transitional practice for singing songs, in order to achieve the support of training breath and the aim of breath's coherence, smooth, balance and perdurability.

Teaching about vocalization

Teaching practice has proven that singing training should be based on natural voice with respiratory support. Male voices are mixed with *false* *setto* on the basis of real voice, while female voices emphasize that *false* *setto* are combined with real voice. Therefore, male voices should be built on the stability of the throat in the low and middle registers, and practice from low to high. The training of female voices should start from the mixed voice, and practice from high to low. The female voice cannot sing with full real voice, which is unscientific. Male voices are dominated by heavy enginery, while female voices are dominated by a combination of light and heavy enginery. "Closed Tones" is one of the most important techniques when tenor produces treble. When the breath rises to the area of the palate and the resonance of head cavity, the abdominal muscles contract inwards, and the diaphragm upwards cooperate with the pectoralis to maintain strong air pressure. The soft palate and the uvula lift upwards, transporting the breath to the area of

head cavity, dimming the tone to turn to the middle and back of the head, and then turning forward to send it out so as to make a powerful and moving resonance of metal texture. However, due to physiological characteristics, females do not need it as males do. Among females, this technique is to transfer from the register of chest voice into the medium register, or from the medium register to the register of head voice.

Teaching about resonance

The resonant cavities of male and female voices are obviously different. The male is taller than the female, and the pharynx is longer and wider than the female, so it is easy to get chest-resonant, and their sound is obviously powerful and deep. While the female's pharynx is shorter and more narrow, getting resonance of head cavity is effortless, so their sound is high-pitched and bright. For male voices, in the natural mid- low voice range, the pure vowel "a" is sung, and for female voices, the register of low voice is their true register so they should sing the round vowel "a". The register of voice changing is the high range of each part of the female voice, and the tone of "u" should be mixed on the basis of "a" and "o".

Teaching about emotional expression

There are psychological similarities and differences between males and females in singing. The males' psychology of singing is mainly to overcome the skills. Many men have "acrophobia" and are afraid of cracking voice. But the females have the symptom of fearing the bass. For the expression training of males, the more specific the action is, the better the efficiency is. The researcher thinks that male voice mainly involves eyebrow training through perennial conclusion. For example, raising eyebrows shows complacency or happiness. With eyebrows alone, emotions such as laughter, longing, pain, surprise, ecstasy, etc. can be portrayed. Females' body language is more abundant than males'. Female singers can practice more onstage performance, such as gestures, eyes, facial expressions and body movements, etc.

Conclusion

By and large, vocal instructors should pay attention to the problems arising from gender differences in vocal music teaching. This study has developed and tested that gender-differentiated teaching method may enable students to make rapid progress in singing. The gender-dependent teaching methods promote the amelioration of vocal music teaching, break through difficulties in practical teaching, and improve the teaching level and ability of instructors.

Suggestions

The following suggestions, according to the research results, are proposed: (1) Problems resulted from gender difference should be emphasized in vocal music education. Male single psychology focuses on overcoming skills. “Tenor panic”, being afraid of voice cracked, is common for male voice, while females are fear of “bass panic”. The more specific movement for male expression training would present better effectiveness; (2) Gender-differentiated teaching could reinforce existing gender-difference teaching theories and implementation plans; (3) Vocal music teachers have to reinforce gender-dependent teaching strategies and teaching methods to enhance teachers’ teaching standards and ability, enrich teaching tactics, and make teaching methods more scientific and effective; (4) It should have students present more definite goals in the vocal music learning process, without taking a detour, to make the learning method more effective. Furthermore, the expansion of data collection and analysis, including case studies of bass and alto, is suggested for further research.

References

- Beegle, A.C. (2010) A classroom-based study of small-group planned improvisation with fifth-grade children. *Journal of Research in Music Education*, 58 (3), 219–239. DOI: 10.1177/0022429410379916
- Bergee, M. J. (1987). Ringing the changes: General John Eaton and the 1886 public school music survey. *Journal of Research in Music Education*, 35, 103-116; DOI: 10.2307/3344986.
- Brophy, T. S. (2005) A longitudinal study of selected characteristics of children’s melodic improvisations. *Journal of Research in Music Education*, 53 (2), 120; DOI: 10.2307/3345513.
- Burnard, P. (2002) Investigating children’s meaning-making and the emergence of musical interaction in group improvisation. *British Journal of Music Education*, 19(2), 157-172; DOI: 10.1017/S0265051702000244.
- Corbeil, M., Trehub, S.E. & Peretz, I. (2016). Singing delays the onset of infant distress. *Infancy*, 21(3), 373-391; DOI:10.1111/inf.12114.
- Coulson, A. N. & Burke, B. M. (2013) Creativity in the elementary music classroom: A study of students’ perceptions. *International Journal of Music Education*, 31(4), 428-441; DOI: 10.1177/0255761413495760.
- Gruenhagen, L.M. & Whitcomb, R. (2014) Improvisational practices in elementary general music classrooms. *Journal of Research in Music Education*, 61(4), 379-395; DOI: 10.1177/0022429413508586.
- Guilbault, D.M. (2009). The effects of harmonic accompaniment on the tonal improvisations of students in first through sixth grade. *Journal of Research in Music Education*, 57(2), 81-91; DOI: 10.1177/0022429409337201.
- Hickey, M. (2015) Learning from the experts: A study of free-improvisation pedagogues in university settings. *Journal of Research in Music Education*, 62(4), 425-445.

- Higgins, L. & Mantie, R. (2013) Improvisation as ability, culture, and experience. *Music Educators Journal*, 100(2), 38-44; DOI: 10.1177/0027432113498097.
- Koutsoupidou, T. (2005) Improvisation in the English primary music classroom: Teachers' perceptions and practices. *Music Education Research*, 7(3), 363-381; DOI: 10.1080/14613800500324432.
- Kratus, J. (1995) A developmental approach for teaching music improvisation. *International Journal of Music Education*, 26(1), 27-38; DOI: 10.1177/025576149502600103.
- Luo, H. (2005) Research on the laws of voice about gender differences in singing training. *Chinese Music*, 4, 151-156.
- Monk, A. (2013). Symbolic Interactionism in music education: Eight strategies for collaborative improvisation. *Music Educators Journal*, 99(3), 76-81; DOI: 10.1177/0027432112467823.
- Pawson, R., Greenhalgh, T., Harvey, G. & Walshe, K. (2005). Realist review – a new method of systematic review designed for complex policy interventions. *Health Services Research and Policy*, 10(1), 21-34; DOI: 10.1258/1355819054308530.
- Pitts, S.E. (2004). Everybody wants to be Pavarotti': the experience of music for performers and audience at a Gilbert and Sullivan festival. *Journal of the Royal Musical Association*, 129, 143-160; DOI: 10.1093/jrma/129.1.143.
- Rabinovitch, T.C., Cross, I. & Burnard, P. (2013) Long-term musical group interaction has a positive influence on empathy in children. *Psychology of Music*, 41(4), 484-498; DOI: 10.1177/0305735612440609.
- Sawyer, R.K. (2006) Group creativity: Musical performance and collaboration. *Psychology of Music*, 34(2), 148-165; DOI: 10.1177/0305735606061850
- Silber, L. (2005) Bars behind bars; the impact of a women's prison choir on social harmony. *Music Education Research*, 7, 251-272; DOI: 10.1080/14613800500169811.