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Construction of rhythm sensation model in vocal music teaching through reinforced solfeggio training

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ABSTRACT

In recent years, with the improvement of China's economic level, there are different levels of improvement in cultural qualities relative to the past and numerous students have started learning music as a specialty. Solfeggio is a professional basis and the teaching purpose is cultivating the music hearing ability, the core of which is comprehensive quality of music. However, with the rapid development of Chinese art disciplines, changes in the content and teaching mode of the new curriculum put forward higher demand on solfeggio. Based on its current status in vocal music teaching, this paper attempts to build a rhythm sensation model in vocal music teaching with solfeggio as the benchmark in order to fully exploit the potential musical talent of students.

KEYWORDS

Vocal music teaching; Solfeggio; Rhythm sensation; Training.



INTRODUCTION

Solfeggio bears the responsibility of organizing and developing the hearing ability of students in vocal music teaching to empower students a good sense of music so that they can devote all their energies to vocal music learning. Typically in the course of solfeggio, teachers try to let students obtain a good and accurate sense of music by plenty of emotional connection, which is excessively visualized. A new vocal music teaching system should be built on the combination of technical training and capabilities of teacher from a comprehensive perspective.

SIGNIFICANCE OF SOLFEGGIO IN VOCAL MUSIC TEACHING

As information technology, multimedia technology, Internet technology is accompanied mankind entered the 21st century, under the background of "information age", "network society", "high-tech society", the "post-industrial era" and the international education environment of "lifelong education", "learning Society", requirements of society to personnel training increasingly high. The concepts of "four learning", "innovative education" has long been singing the main theme of the century, education has gradually become the driving force of the new era of social development, most countries of the world has been aware of this problem, and have set off a wave of education reform. Some advanced music education philosophy has emerged, which forces us to have to seriously look at the status quo of music education of the world and China. There are two aspects in solfeggio, sight singing and ear training. The former refers to the abilities of accurately singing the pitch and rhythm of the tunes in accordance with the requirements of music scores while the latter is the training of memory ability of music, resolving ability of music rhythm and inner hearing of music. As a basic course of music education, solfeggio is responsible for exploiting the potential musical talent of students, cultivating their qualities and enhancing their sense of music and expressive force with the help of vocal music teaching. The distinct rhythm in music is the skeleton and soul of music and is the basic requirements of vocal singing just like intonation. To be of sharp perceptivity of music requires not only congenital conditions like music talent as the basis, but also cultivation of various other abilities through subsequent learning and training.

ANALYSIS OF THE CURRENT STATUS OF SOLFEGGIO IN VOCAL MUSIC TEACHING

The music classification based on audio content, search and recommendation algorithm is one of the hotspots in multimedia signal processing and information retrieval. Compared with descriptions in this paper, description of audio content can better reflect the people's perception of music appreciation directly related audio features, such as musical sound, the singer's voice, rhythm, prosodic and structure and other features. Extracted acoustic features directly related to the audio characteristics are the key technologies of the audio signal from for audio content accurately described. This has important implications in personalized search and recommendation service. The aim of solfeggio course in vocal music teaching is to nurture music talents with excellent musical hearing for society and to serve the entire music teaching system. For music education major in colleges and universities, the students nurtured are of high music quality and teaching quality which can well meet the requirements of society. Vocal music teaching has always attracted great attention in our country and both art students in high school and students in colleges or universities specialized in music have taken the course of solfeggio for 2 years or longer time. Especially in college courses, the class hour of solfeggio is only second to courses of professional skills. Specific practice data is shown in TABLE 1.

TABLE 1 : Comparative divided results of the initial model and updated model

Algorithm	Average error rate	Average false alarm rate	Average of the false negative rate
Traditional method	16.6%	23.7%	14.1%
Model update algorithm	14.3%	21.7%	11.6%

Students need to receive monophonic and multi-voice training of various styles so that they can evaluate the music themselves they will be in contact with in the future and improve their taste of music and comprehensive quality of music. It can be said that training of solfeggio focuses on the essence of music hearing so that students can strengthen musical foundation in the direct contact music and develop their comprehensive ability of music. However, there are still many problems in vocal music teaching, for example, despite students' outstanding performance in solfeggio, they often make mistakes in rhythm and intonation during professional training without the habit of beating time, replacing sight-singing with a piano and reading music and when appreciate music, they do not attach importance to the tonality, form and brand of music. Solfeggio is not only the foundation of aesthetic, understanding and performance, but also the premise of elements of music in music practice. Therefore, teachers should strengthen training of solfeggio to build a teaching model that can enhance students' sense of rhythm in music, thus improving teaching quality.

CONSTRUCTION OF TEACHING MODEL OF SENSE OF RHYTHM OF VOCAL MUSIC

Technical Aspect

Correction and Training of Intonation

Intonation is one of the basic parts of vocal music teaching and first students need to master the correct state of

sound production. A professor of Central Conservatory of Music pointed out that state of sight-singing should be the same with vocal singing and vocal skills need to be adjusted according to the state of sound production. The vocal organs, respiratory organs and resonating organs in the human body constitute a complete vocal instrument. If comparing the sound state of stringed instruments to the human body, sound source of the strings is the posture of human body and resonance of vocal cords, head cavity, chest is the resonance conduction of the instrument. Breathing state is the power for voicing. These combine to produce fine tone and pitch and if one is missing, there will be something wrong in intonation. Vocal cords are vibrating in singing and should be kept smooth from start to finish. The key factor in changing the shape of the throat is articulation and it is not changed by sound volume or vowels. Usually state of throat in vocal singing is described as: relatively stable in a low position. Correct breathing state is the premise of the maintenance of correct intonation and also an important support for vocal singing. Usually there are deviations in intonation like lack of breath, inaccurate breathing method in taking fast breaths and rhythmic pattern of prolonged sound. Breathing mobilizing every part of the body is really conducive to intonation in singing. The ratings histogram of initial model and updated model is shown as Figure 1.

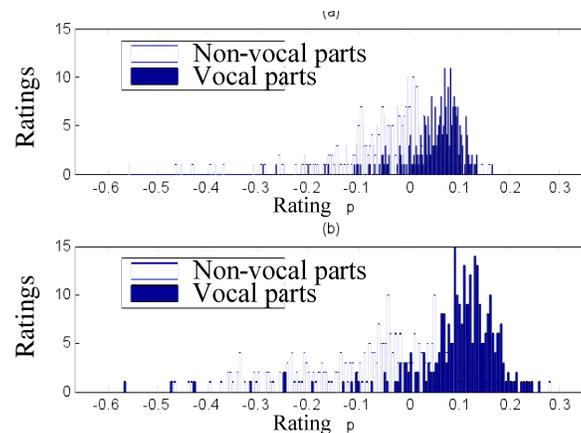


Figure 1 : Ratings histogram of initial model and updated model

Therefore, while practicing intonation, musical mode can be regarded as the basis. From the point of perceptual intuition, problems in intonation include not knowing the pitch names, deviations in intonation expression and confusion of pitch names and syllable names and so on. In fact, the most fundamental reason is not properly match the high pitches with syllable names. There will be contradictory feelings in different levels in the syllable names of a pitch. Harmonic interval and mode in chord are a good start to solve the above problems. Training of harmonic interval built on the basis of the relationship between mode and interval paves the way for polyphonic hearing, forms harmonic interval in mode and consolidates the relationship among intervals. In the training process, just listening to the pitch should be avoided and regarding two parts as the individual upper and lower melody should also be avoided. The following is the inner auditory premonition. The inner imagination of music is the basis for the representation of music by men and musical instruments. The inner intonation is initially formed by practicing intervals in sight-singing and through familiarization of relationships among basic pitches, intervals and sounds so as to take the initiative to record the pitches in hearing. With any sound level as radical in accordance with nature, structural singing expresses sound effects first before voicing pitches. If singing randomly, memory of wrong pitches will be deepened. In order to prevent deviations of pitch in the process of vocal singing, pitch should be timely adjusted through hearing and inner intonation after singing the high pitch out. Therefore, teachers should guide students to learn to use the inner hearing to memorize pitches and to experience the sound effects of high pitches in the longitudinal direction (shown in Figure 2).

Reinforcing of Training on Sense of Rhythm

The first step is to develop students' awareness and sense of speed of the unit of beat and the primary task of training on sense of rhythm is to establish a stable sense of beat. Relevant musicologist noted that the speed refers to the frequency of beating of the units of the beat and a relatively stable and constant beat speed must be maintained, neither too fast or too slow. In traditional Chinese music speed is regarded as a yardstick to measure rhythm and only a relatively stable yardstick can measure the various changes in the density and speed of the rhythms. Thus, the premise of training students' sense of rhythm in vocal music teaching is to establish a sense of beat so that students can develop the habit of beating time and consciously regard accurate sense of beat as the standard to measure rhythm in their learning process in the future. Rhythm is a kind of sound and frequency form with no height or length so it requires hand movements as a supplement to ensure the relative stability. Specific beats are shown in Figure 1. It is a schematic diagram of the beat conducting in witch strong and weak beats can be fully appreciated with a stable speed (shown in TABLE 2).

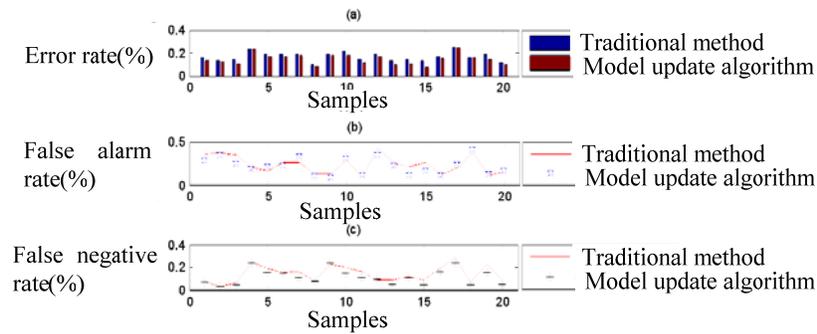


Figure 2 : Comparison of segmentation performance of initial model and model after update

TABLE 2 : Comparison of the performance of different updated model algorithms

Algorithms	Average error rate	Average false alarm rate	Average of the false negative rate
Traditional method	16.6%	23.7%	14.1%
Model update algorithm	14.3%	21.7%	11.6%
75% data model update algorithm	14.5%	20.8%	12.0%
80% data model update algorithm	14.0%	20.7%	11.6%
85% data model update algorithm	14.0%	20.5%	11.7%
90% data model update algorithm	13.7%	20.3%	11.3%
95% data model update algorithm	14.4%	20.9%	12.0%

Training on the sense of the rhythm is intertwined with changes in rhythms. Rhythms will become increasingly complicated and increasingly changeable along with the learning and the significance of control and constraints of rhythms will be highlighted. It takes long-term cultivation and training to make students construct and grasp a stable sense of rhythm in their inner hearing and maintain it regardless of the complexity of multi-sound relationships. The next step is to cultivate students' awareness of rhythmic patterns and rating of sound quality. Another part in the training on rhythms is the understanding and grasp of basic rhythmic patterns whose division in certain conditions is relatively fixed. Rhythmic pattern is the foundation for people to recognize, remember and analyze rhythms and mastery of it means being able to listen to, sing, recognize, read, memorize and analyze it. In a word, mastery of the basic rhythmic pattern should be fast, accurate and fluent. The basic rhythmic patterns are demonstrated in Figure 2. As the organization of rhythmic patterns is quite changeable, it is impossible to explain one by one in teaching. Students only need to understand the various derived rhythms by adding in subdivisions of rhythm, pauses and slurs with the basic proportional relation of segmentation remaining unchanged and the classification of rhythms based on this, such as the long-short pattern, the average one and the short-long pattern, as well as the composites of them, for example, the syncopated rhythmic patterns composed by the long-short pattern and the short-long pattern. In short, as long as the derived law and classification of the rhythmic patterns are mastered, various other patterns will be easy to understand and complicated rhythms encountered in the future study can also be classified and decomposed quickly so as to learn its rhythmic rule (shown in Figure 3).

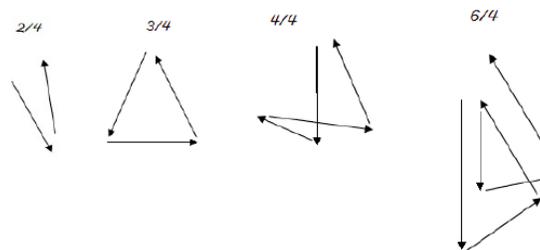


Figure 3 : Schematic Diagram of the Conduction of Beat

Polyphonic Training

Polyphonic sight-singing is to cultivate singing skills based on hearing, involving many polyphonic sight-singing forms as cannon, harmony, and polyphony. Acoustic requirements ask for harmony longitudinally and melody lines of each part laterally. Training of this phase enables students to understand and grasp the processing mode of melody lines of different parts, clearly understand how to coordinate the integration of the sound effects of harmony and to deal with melody of parts in works of different types with processing of different levels. For the main melody in works of polyphonic sight-singing, the part of main melody is always in the main position in the creation and singing of the harmonic structure no matter it is formed by human sound with sound of instrument or solely by human sound in order to highlight, beautify and

strengthen the part of the main melody. Parts of high pitches and homophony are in the position of main melody while other parts serve as a contrast or foil. Sometimes there are main melodies or independent phrases appearing in the part of non-theme to increase the sense of polyphonic lines to achieve some particular effect (Specific information is presented in Figure 4). Figure 4 is sight-singing of the third part of major key, G. The position of the main melody is the part of the high pitches. Parts of the middle and low pitches play a supporting effect in harmonic structure and especially in connection with parts of high pitches in the third and fifth sections to ensure the completion of the work.



Figure 4 : Illustration of Parts of Main Melody

Teachers

With the development of the times, there are different degrees of changes in both the philosophy and approach in vocal music teaching with respect to the past, especially the learning mode has become more student-oriented and continues to guide the students' in-depth study of solfeggio in order to cultivate students into talents adapting to the modern development model. So vocal teachers should pay attention to flexibility in teaching model they will build. Music is a free art form. Teachers can take advantage of this strength to improve the ability of students to experience music so that the class is of viability and the single class pattern in teaching is avoided. Therefore, in addition to strong professional level, teachers need to constantly improve their comprehensive ability, bravely reform the education philosophy conforming to the development trend of modern society and promote students' interest in learning solfeggio. Because of the strong responsibility in the teaching of solfeggio, teachers are supposed to improve their knowledge of all aspects to surpass themselves and to improve teaching ability in order to achieve better teaching results.

CONCLUSION

In short, training of solfeggio occupies a significant proportion of in the vocal music teaching and it is a gradual process from easy to difficult and from shallow to deep. While constructing teaching model that matches with sense of rhythms, teachers can treat solfeggio as a single individual and teach within a system, for example, course of rhythm training allows students to recognize and distinguish various rhythmic patterns and to know technical problems frequently encountered in the training process well so as to solve them timely and improve the overall teaching quality of the vocal music teaching.

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