Enlightenment on Vocal Music Classroom Teaching from the Perspective of Big Data

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Abstract. With the arrival of the era of big data, mobile Internet, Internet of things, cloud computing, etc. are constantly changing our lives. The high-speed development of information technology is boosting the development of educational information, restructuring our classroom teaching and learning methods, which of course also includes vocal classroom teaching. This paper briefly introduces the relationship between the era of big data and vocal music classroom teaching, analyzes the factors affecting vocal music classroom teaching from the big data, and studies the new ideas of vocal music classroom teaching from the application of information technology. At the same time, this study also describes the role of information technology-based “singing situation” teaching in vocal music teaching, such as skill training, voice image shaping, blending scenes, etc., to guide students to apply the emotional characteristics of singing thinking to singing art activities, and strive to provide some new enlightenment for the current vocal music classroom teaching through the power of scientific and technological information. It also provides theoretical basis for the innovation and reform of vocal music classroom teaching.

Keywords. Big data; information technology; vocal music classroom teaching; singing situation.

1. Introduction

Vocal music classroom teaching is aimed at shaping people’s own voice artistic expression ability. It takes artistic language and scientific voice as the means of expression, touches people's emotion, acts on people’s soul, and gives people various influences and enlightenment. With the advent of big data era, we realize that the development of information technology will provide a new perspective for vocal classroom teaching, which has potential value and prospect in vocal classroom teaching research. How to apply the research results of information technology to mass music education, so as to have an important impact on the decision-making and practice of music education, will be an application research direction with exploration potential under the background of interdisciplinary integration [1]. Traditional education mainly depends on Teachers’ individual comprehensive teaching ability to judge students' learning efficiency and make corresponding teaching decisions. In the era of big data, we can feed back teaching through a large number of data, make personalized teaching, and predict the results of teaching behavior, and organize teaching activities from the perspective of scientists. Music skill teaching can also be gradually presented by visualization technology through the combination of computer image processing technology and X-ray, ultrasonic, nuclear magnetic resonance technology [2].
We can also analyze the students’ psychological emotions in the process of music learning according to the monitoring of big data. The analysis and statistics of this data is of great practical significance for the monitoring of the fluctuation of psychological emotions in our music classroom teaching. According to the data analysis of the psychological trend chart, we can find out the students’ interest points, understand the real psychological needs of the students, and then greatly improve the sound. The effect of music classroom teaching is more in line with the requirements of human nature [3]. Through the analysis of the literature about big data, music education and neuroscience research at home and abroad in recent years, it is found that the brain evoked potential response of subjects is related to individual factors and various music factors. These factors include age, gender, hemispheric asymmetry, musical rhythm and melody. Music mode and speed mode are related to pitch. The mode changes with pitch. The mode experience depends on the distance between pitches. The emotion of music and the influence of music and language on brain mechanism. With the progress of the times, music education in the future should not only be confined in the teaching of music discipline, but also pay attention to the connection between disciplines. Vocal music classroom teaching strives to be the same as medicine, adjust the teaching strategy according to the data analysis of students’ learning behavior, and adopt evidence-based teaching in the classroom.

2. New Approaches to the Study of Vocal Music Classroom Teaching from the Perspective of Big Data

The Internet and new media technology will gradually integrate the vocal music classroom teaching with computers, software programs and big data, which will turn the vocal music teaching mode, better reflect the education concept of “core literacy”, and develop personalized guidance for students’ vocal music learning. How to carry out the research of vocal music teaching by means of science and technology, to promote the development of vocal music education and the improvement of national quality, to provide scientific and rigorous empirical research support for the development and popularization of vocal music art and education.

2.1. Improve the Value of Vocal Music Teaching

“Singing situation” plays an important role in vocal music teaching practice. Big data provides strong data support for the decision-making of vocal music teaching, which is conducive to further optimizing the decision-making of vocal music classroom teaching and further improving the value space of vocal music teaching.

2.2. Promote the Process of Vocal Music Teaching Informatization

The integration of scientific information technology into vocal music teaching will help the teachers to visualize the abstract singing activities, simplify the profound singing theory, improve the teaching ability of the teachers, promote the development of the singing function of the learners, and promote the informatization process of vocal music teaching, which has positive practical significance.

3. Research on Vocal Music Classroom Teaching from the Perspective of Big Data

To introduce big data and information technology into vocal music classroom teaching, we should first correctly understand the relationship between big data and information science and technology and vocal music classroom teaching, and what kind of help they can provide for vocal music classroom teaching, so as to promote the new development of vocal music classroom teaching. This forces us to have a certain understanding of big data and related information science and technology, as well as the value, purpose and importance of contemporary vocal music classroom education. Contemporary vocal music classroom teaching is a multi-disciplinary discipline. There are important areas in education and music. First of all, as far as vocal music classroom education is concerned, it has the intrinsic value attribute of music, that is to say, it reflects the essential attribute, functional purpose and other basic propositions of music education through teaching music. Secondly, from the perspective of the special
value attribute of vocal music classroom education, music education also has the educational attribute of aesthetic education and aesthetic education. That is to say, music education plays a unique role in the development of people’s comprehensive ability. Third, with the application of information science and technology research results in vocal music classroom teaching, new technology research results can better serve for music education.

3.1. Information Technology Creates Singing Situation in Vocal Music Teaching

The theory of situation learning holds that human rationality is always embedded in concrete and real situations and changes with the changes of situations. At the same time, every situation is the cognitive process and life experience of human beings in a specific time and space [4]. Singing situation represents the artistic image, artistic interest and artistic atmosphere expressed in works of art, and triggers rich artistic association and fantasy. According to the theory of Situation Cognition, knowledge and action are interactive, and knowledge is situation. By means of information technology, situation activities are created in vocal music classroom teaching to lead students to participate in practice, thus promoting skill learning and knowledge understanding. The creation of singing situation means that dynamic images such as language, music, audio-visual and so on are taught through information technology resources to promote the achievement of singing ability [5].

3.2. Construction of Singing Situation in Vocal Art Activities

In the teaching song “swan geese” (figure 1), the teacher plays the teaching video songs recorded by Renren app software, guides the students to watch the cloud class after class, and stimulates their interest through the intuitive pictures and audio-visual videos, and the learners carry out teaching activities in combination with their own knowledge. In terms of physiological mechanism, one of the functions of neuroscience is imagination. This is a process in which old temporary connections in the brain are reorganized to form new temporary connections. In life, when people perceive the objective things, the cerebral cortex will leave a lot of traces, between which a temporary neural connection will be established, forming a temporary neural connection system. The more experience people have, the more temporary connections they have. From the perspective of vocal music performance, singing thinking imagination refers to the ability of the subject of singing thinking to form a specific situation in his mind when singing vocal music works [6].

![Figure 1. Swan geese.](image)

Now popular songs “swan geese” is based on the adaptation of Wulate folk songs, re orchestration, Lv Yanwei reformed after [7]. The beautiful and broad melody and poetic lyrics bring people to the vast Mongolian grassland, where the sky is vast and the wild is vast. The grassland is divided into cattle and sheep. In the vast sky, a line of wild geese fly. The images of these objects are new images created by human brain through imagination on the basis of representation.

3.3. The Application of Singing Situation in Vocal Skill Teaching

In the sound training in the high voice area, the teacher plays the relaxing background music before the practice, makes the simulated warm-up exercise from the body movement force part, uses the playing software to decompose and explain the technical movement, and achieves the visualization of the teaching content. By means of pictures, videos and other technical means, the structure framework of
knowledge is displayed, and the rules in the development process of things are analyzed and compared in
the form of charts to help students understand concepts and methods [8]. Physiologically, when
human beings have emotions, various internal and external manifestations will appear. In the teaching
of vocal music, it is very important to stimulate the cooperation function of brain and nerve and
cultivate the imagination of students’ singing thinking through the function of external sound and
image. In vocal music teaching, students’ singing thinking has always been full of rich imagination.

“The wind is blowing” (figure 2) is one of the important arias of modern Chinese opera “regret for
the past”. It is written by Wang Quan and Han Wei and composed by Mr. Shi Guangnan. This song
shows the inner monologue of the heroine Zijun, and vividly depicts Zijun’s difficult situation in family
and marriage life, looking forward to the autumn wind and the fallen leaves and Pondering over the
figure image [9]. The first sentence is in G flat major, with little melody fluctuation and close to the
tone of speech. “I want to confess to you religiously, but I don’t know my fault.” repeat twice. The first
time is MP, telling Zijun’s inner tangle and helplessness to change the status quo. The second time was
MF, which seemed to express the anger of the feudal society. At the back of each sentence, the left
hand has a rapid three times of powerful percussion of column chord, like the silent cry of the heroine.
The second time is more emotional than the first time, with the outbreak of inner pressure in the pain,
want to shout out their grievances. “Ah, life, I think hard for you. Ah, ah, ah ‘pitch ups and downs, the
continuous three consecutive sounds make the music catch the listener’s heart, and highlight the whole
work’s anger and tangled emotions. This is the most exciting part of the whole song. Zijun cries out all
her sorrows and pains, and shows her inner entanglement on the modal word “ah”. The last sentence
returns to calm, as if the heroine finds that she is still unable to change the current situation after
struggling, and finally confesses her life in pain.

3.4. The Application of Singing Situation in Vocal Performance

Singing practice is the most important link in the stage of vocal music practice. In the practice of
teaching activities, teachers use information technology to create singing situations, so as to stimulate
students’ singing emotions, such as singing “lovely home”, “deep ocean”, “beautiful mood” and other
songs. The construction of stage environment, the teacher’s gesture, the drive of eyes and body
movements, make full use of the cooperation function of human eyes brain system. When students sing
songs, they can do it in the corresponding situation. For the design of performance situation, they can
make a beautiful scene, a plot event or a role.

“Looking for plum blossom in the snow” (figure 3) is a short and elegant artistic song, written by
Mr. Huang Zi in the 1930s [10]. The fields are snowy, covered in silver, the winter sweet blossoms, the
fragrance surges, and the sunshine is bright. Several friends meet to enjoy the plum. They should praise
the snow scene with full enthusiasm. First of all, they should give the pictures of the beautiful snow
scene to play with lyrical music to make them feel: “it’s so beautiful!” As long as they are in the singing
situation, the praise will be sincerely revealed. With sincere praise, you will be excited. It’s easy to
open up a cavity. Sincere emotion can easily make singing organs cooperate, breathe smoothly and breathe sink. Under the support of deep breath, humming will be full and passionate [11].

Figure 3. Looking for plum blossom in the snow.

3.5. The Application of Psychological Situation in the Cultivation of Students’ Psychological Quality of Vocal Music

Psychological situation is the term of Roth’s personality social learning theory. It refers to a unique and personalized situation formed by the combination of external environment stimulation and individual internal cognitive process. It is an important aspect of determining individual behavior. That is to say, the individual continuously receives the stimulation of the external environment to form the corresponding perception, which is combined with the internal cognitive variables such as past experience to jointly affect the individual’s behavior [12]. In vocal music teaching, there are often students who are confused about many problems and always worry about singing badly. Once they sing high notes, they are too nervous to control themselves, and finally they can’t sing well. In the process of training this kind of students, Teachers should create “psychological situation” to guide their singing thinking activities and help them to establish a good mood and state [13]. As long as they enter the state of true feelings, they will activate the active cooperation of the body to achieve smooth breathing. The body will participate in the singing in the right way, and achieve the effect of both sound and sound. On the other hand, students can read the lyrics aloud and affectionately. For example, the word practice “how can I not think of him”:

“Light cloud drift above in the sky, over the land wafts a light breeze. The light breeze stirs my hair, how can I rid my mind of her? Moonlight loves the sea, the sea delights in the moonlight. On such a silvery night, sweet as honey, how can I rid my mind of her? Fallen blossoms slowly drift across the waters as fish swim in their depth swallow, what are you saying?
How can I rid my mind of her? Withered trees shake in the cold wind, while a grass fire burns at dust. Sparse sunset clouds linger in the western sky, how can I rid my mind of her?”

Students are encouraged to recite the wish of singing with full confidence on the basis of recitation, and then read it twice, and do phonation exercise on the basis of recitation, which can quickly achieve both emotion and voice, including accurate pronunciation and tone.

4. Conclusion

As a teacher of vocal music course, first of all, he should have the idea of lifelong learning, keep up with the pace of the times, master new technology, learn to use the existing teaching software and network resources reasonably and effectively to design and organize vocal music classroom teaching, take the cultivation of students’ singing ability as the output orientation, and use modern advanced education technology to cultivate students’ expression ability of performing music with human voice. In the teaching process, teachers should make use of information technology to put students in the “singing situation”. Let learners wake up singing body state, over time to establish their own correct singing muscle habits. In the process of learning voice music, and enrich their imagination, emotion, creativity and aesthetic objective thinking and cultural knowledge. As a vocal music learner, he should have the ability to explore, the ability to learn actively, and effectively use the current information technology to improve his quality.
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