



Research on the Construction of Vocal Music Teaching Mode based on Deep Learning Model

Chunli Ruan^{1*} and Chen Lin²

¹College of Art, Xiamen University, Xiamen361005, Fujian, China, zunr41@163.com

²School of Film, Xiamen University, Xiamen, 361000, Fujian, China, mpotw72@163.com

Corresponding author: Chunli Ruan, zunr41@163.com

Abstract. In order to study the construction of vocal music teaching mode of deep learning model, this study uses the teaching model of deep learning to analyze and discuss the impact of different aspects of vocal music teaching. The results show that deep learning can promote students' learning autonomy, form a good personality, and promote students' ideological development. In addition, this study also involves the development history of vocal music at home and abroad. Through combing and analyzing it, it reveals the development process of vocal music at home and abroad and the growth of vocal music teaching.

Keywords: Deep learning; Model; Vocal music; Teaching mode; Research.

DOI: <https://doi.org/10.14733/cadaps.2023.S12.202-215>

1 INTRODUCTION

Music is an art and a way for people to make life perfect. Therefore, with the rapid development of national economy and scientific research, people pay more and more attention to the development of music. First now, the country has made great progress in the development of vocal music this is the main reason for the gradual improvement of vocal music teaching quality in China, and there are also certain problems. Therefore, when choosing the teaching mode for the teaching process, it cannot be generalized with other disciplines. With the development of vocal music, the research and study of vocal music are more and more in-depth. We should be more careful when choosing the teaching mode. The development of information technology has brought great changes to college teaching, but also brought opportunities, Sunwanjing (2022) analyzed the vocal music teaching mode in the multimedia teaching environment, explored the practical application of multimedia in vocal music teaching, and the innovative reform path of its mode in the information technology environment, which provided thinking and reference for the later teaching field and development [1]. In order to better explore the teaching reform and innovation in the context of the new era, Wu Weijie (2022) studied its reform and believed that the innovation of teaching mode should be promoted with new liberal arts thinking, the discourse system of vocal music

teaching mode in Colleges and universities should be constructed, the online and offline mixed teaching mode should be applied, and the diversity of majors and elective courses should be paid attention to. Only in this way can the significance and value of the reform and innovation of this mode be reflected [2]. Similarly, Liu Hao (2022) also conducted practical research on its mode, using the cutting-edge and epochal nature of the Internet resource sharing platform, adopting open and hybrid vocal music teaching modes, combining technology and skill teaching with curriculum ideological and political teaching, and promoting the innovation of the mode [3]. The rise of the Internet has not only promoted the prosperity and development of economy in all fields, Tian Yiqi (2022) is using the Internet to discuss and analyze his teaching mode, deeply analyzed its problems, and put forward feasible improvement strategies to gradually improve the teaching effect and quality [4]. Under the background of rapid development, Li Xiangfeng (2022) discussed the construction of its model, analyzed the application of cooperative learning in classroom learning and practical learning, and realized students' learning. Class organization. Effective application of the audience's Mu class teaching mode [5]. There are also differences and artistry in Chinese and foreign art teaching models, which are influenced by famous ethnic cultures. Customs, regional background, historical and cultural factors have a certain literary and singing nature. Xu ran (2021) et al. Made an in-depth analysis of its factors and put forward targeted solutions [6]. In order to keep their children at the starting line, more families carry out early childhood education for their children. Lu Xin (2021) analyzed their early childhood education model, analyzed the current situation of education and teaching at this stage, and put forward relevant policies [7]. Caixuejun (2021) also made innovative research on the teaching mode of preschool education, analyzed the current situation and some problems of vocal music teaching mode of preschool education, and put forward a series of practical and effective strategies for the corresponding problems [8]. This research is based on the vocal music teaching mode of deep learning model. Through research and analysis, we can better understand the learning mode under big data, which is more suitable for the current way of educational development.

2 DEVELOPMENT HISTORY OF CHINESE AND WESTERN VOCAL MUSIC

2.1 Development of Chinese National Vocal Music

China is an oriental country with a long history and rich music culture. Luo Rainforest (2021) discussed the emergence and development of ancient music in China according to unearthed cultural relics [9]. In the long river of music, the Enlightenment period of Chinese national music can be traced back to the Neolithic age, which is more than 7000 years ago. According to the cultural relics of musical instruments such as pottery Cuan and bone whistle excavated in modern times, it can be inferred that humans at that time had begun to make musical instruments, appreciate and learn vocal music. According to ancient documents, ancient music culture has a way of expression in which song, dance and music are combined. This is the bud of music development. Xia and Shang Dynasties were slavery society. In the Shang Dynasty, witches and wizards specialized in sacrifice appeared. They were fed by slave owners, danced and sang during sacrifice, and were the first people to take music as their profession. During the Western Zhou Dynasty, the court established a complete system of rites and music. Qin Qing, a famous singer at that time, was also an excellent vocal music teacher as a singer. In the Qin and Han Dynasties; "Yuefu" began to appear. It inherited the style collecting system of the Zhou Dynasty, collected and sorted out folk music, and gathered a large number of musicians to perform on various occasions. In the Han Dynasty, drum music began to rise in the northwest frontier. Today's folk wind and percussion music comes from this. In the Han Dynasty, "Baixi" appeared, which was a program that combined song and dance, acrobatics and acting together. The Qing commercial music developed from Xianghe song received the attention of the Cao Wei regime in the north and

set up the Qing commercial office. During the war, the commercial music of the Qing Dynasty spread to Xiliang and Jiangnan with the Eastern Jin Dynasty, which was the product of the combination of the old Xianghe song and Wu Sheng and Xi Qu. In the Han Dynasty, the Silk Road was unblocked, prompting the songs of the western regions to begin to spread to the mainland. As a representative instrument of traditional music culture, guqin tends to mature in this era. At the end of the northern and Southern Dynasties, a song and dance drama with story lines, roles and makeup performances, as well as accompaniment and orchestral accompaniment, was also popular, with the rudiments of small operas. Especially in the heyday of Kaiyuan in the Tang Dynasty, a peak of all-round development of music art with song and dance music as the main symbol was formed. The music enjoyed by the court in the Tang Dynasty is called "Yan music". The prosperity of music culture in the Tang Dynasty was also manifested in a series of institutions of music education, such as teaching workshops, pear orchards, and pear orchards that specialized in teaching children. These institutions have created groups of talented musicians. Cao Rou in the Tang Dynasty also created the notation of ancient Qin by subtracting the word spectrum, which has been used until modern times. LV shuning (2022) compared and sorted out the educational management and functions of the court music institutions in the Han Dynasty and the Tang Dynasty [10]. The rise of civil music in song, Jin and Yuan Dynasties is an important symbol of music development. The Guqin music of the Song Dynasty was preceded by Guo Chuwang's representative work "water and clouds in Xiaoxiang". In the development of bowstring instruments, records of "horsetail huqin" appeared in the Song Dynasty. In the Yuan Dynasty, the national musical instrument Sanxian appeared. In the theory of music, the records of Yan music scale appeared in the Song Dynasty. At the same time, a kind of gongchi spectrum popular in modern times directly comes from the early gongchi spectrum in Zhangyan's etymology and Shen Kuo's Mengxi Bitan. Song Dynasty is also an era when Chinese opera tends to mature. Its symbol is the emergence of southern opera in the Southern Song Dynasty. Many people believe that the music thought in the Northern Song Dynasty showed the characteristics of "emphasizing elegance and ignoring vulgarity". Chen Yinxuan (2022) tried to review the specific cognition of the Song Dynasty on the development of music elegance and vulgarity through combing the music theory of the Northern Song Dynasty, and rethink the concept of music elegance and vulgarity in the Northern Song Dynasty and its causes [11]. In the Yuan Dynasty, the art of opera reached a peak represented by Yuan zaju. Due to the expansion of the civil class in the Ming and Qing Dynasties, the development of music culture has the characteristics of secularization, forming song and dance music, which is widely spread among all ethnic groups. Characterized by the spread of vocal tunes, opera music in the Ming and Qing Dynasties has reached a new peak of development. At the end of Ming Dynasty and the beginning of Qing Dynasty, the Bangzi opera represented by Shaanxi Xiqin opera in the North lasted for a long time because of its high pitched and forthright characteristics. In the late Qing Dynasty, pihuang tune, which was composed of two basic tunes, xipi tune and Erhuang tune, was initially formed in Beijing, resulting in Peking opera that spread throughout the country.

From the Opium War in the late Qing Dynasty, through a series of anti imperialist and anti feudal revolutionary movements, to modern times, in which more than 100 years, the development of Chinese music culture is mainly the intersection of traditional music and western music, with democracy and science as the main. The development of revolutionary folk songs was the first upsurge of traditional music. The formation of Peking Opera in opera music affected the whole country, and a generation of famous actors such as Mei Lanfang and Cheng Yanqiu appeared. Various local operas have also achieved rapid development. National instrumental music is characterized by the emergence of various folk societies performing instrumental music, which reflects that the development of national instrumental music has a deep foundation of folk activities. In addition, the compilation and publication of various zither and Pipa scores have also increased. Western music, as a cultural form, had a continuous impact on school songs. As a music textbook for students, school songs aim to publicize patriotism, anti imperialism, support the

Republic, and learn about European and American scientific civilization. Under the background of the May 4th New Culture Movement, China began to carry out music activities to spread western music and improve national music, and established some music associations. Professional music education was initially established on the basis of these music associations. In the 1920s, Xiao Youmei founded the National Conservatory of music in Shanghai, which was the beginning of formal professional music education. During the May 4th movement, Zhao Yuanren, a famous linguist and composer, was one of the representatives of professional music creation in early China. Liu Tianhua, a national musician, explored and improved national music from studying western music, and founded the "national music improvement society" to include erhu into professional music education courses. Li Jinhui created a large number of children's song and dance dramas, which is an early exploration of China's new opera creation. Wang Yixiao (2022) discussed and explained China's "land ocean dispute", which had a far-reaching impact on the development of vocal art in China [12]. Beijing and Shanghai have established various music associations and music departments in schools. The formation of professional vocal music education has trained a large number of excellent vocal educators and singers for our country. After the Anti Japanese War, our country boldly created folk tones, and countless works emerged. These works are important teaching materials in vocal music teaching in our country. After the reform and opening up, China has its own mode in song creation, content and style. In vocal music teaching, we should take its essence and discard its dross, learn from foreign successful experience in vocal music teaching, innovate our teaching methods, form a unique teaching mode suitable for our country, and promote the development of vocal music teaching. Colleen (2021) combed and analyzed the development process and origin of Chinese vocal music in the study, and came to the multi-cultural characteristics of the development of Chinese vocal music [13].

2.2 Development of Chinese National Vocal Music

Western vocal art began in ancient Greece. From the 12th to the 8th century BC, Greek music was basically improvisation. In the Middle Ages, ancient Roman music began to develop, mainly church music, and its works were all monophonic. Rome established the first singing school, creating a precedent for professional vocal music teaching. European music before the 13th century was monophonic. By the 14th century, European music gradually broke through the monophonic part and gradually formed polyphonic chorus. "Eunuch singer" laid the foundation of Bel Canto and pushed the level of European vocal music to a higher level, Sun Pengyu (2022) and others analyzed eunuch singers and discussed their role in the development of vocal music [14]. From the 14th century to the 16th century, secular themes were gradually added to music, and humanism was carried forward, but the old framework of polyphonic chorus has not yet been jumped out. Until the end of the 16th century and the beginning of the 17th century, a new musical form combining music and drama appeared in Florence - early opera. From then on, the solo accompanied by harmony gradually replaced the polyphonic chorus. With the birth of opera and the development of instrumental music, the new style of Baroque period was established. The music style gradually shifted from polyphonic music to tonic music. The use of digital bass brings new concepts to acoustics. Perry and others created a novel recitation tune in opera creation - recitation tune. In the 16th century, bel canto developed on the basis of opera. At the end of the 18th century, as the feudal system began to shake, eunuchs began to decline. With the development of the enlightenment in the 19th century, Paris became the center of vocal music development at that time. At that time, the masters of vocal music research made great progress in physiology and vocal music theory, and the findings of various studies also laid the foundation for bel canto singing and vocalization. The period from the 18th to the 19th century is called the "romantic" period, which pays more attention to the expression of emotion. Romantic opera arias have promoted the development of western music. Xu Lixiang (2022) analyzed and discussed the development of aria in the history of western music in his research [15]. Music in the 20th century

has made a breakthrough in traditional music, with various genres, languages and styles, forming electronic music, neoclassical music, etc. Ma Ruixia (2021) studied the development of western music in the 20th century, exploring and understanding the development and transformation of western "new music" in the 20th century [16].

3 ANALYSIS OF THE CURRENT SITUATION OF VOCAL MUSIC TEACHING

3.1 Analysis of Teachers' Teaching and Students' Learning

As the guide of teaching, teachers play a vital role in educating students. In addition to having high professional skills, teachers should also keep pace with the times in teaching methods and be student-centered; We should pay attention to the differences of each student and learn to use different teaching methods for different students; "Teaching people to fish is better than teaching people to fish". While teaching students knowledge, we should also teach students how to learn, so as to transfer more vocal music knowledge and skills to students. And we should be good at combining life, theory and practice in order to facilitate students to understand and absorb vocal music knowledge. The teaching concept under the new concept abandons the idea of taking teachers as the main body in the past, and changes to taking students as the main body. It is no longer a "cramming" teaching, but to inspire students, mobilize their own enthusiasm and initiative, let them have autonomy, let students understand the music content they are interested in, strengthen communication with teachers, and can adjust themselves in mutual communication, and respect students, help and guide students to learn. Pay attention to comprehensive evaluation and qualitative evaluation, and realize the diversification of evaluation indicators and methods. The development of contemporary new technology has also enriched the vocal music classroom. Teachers should use new technology to lead students to understand more vocal music knowledge, personally experience the development of vocal music, and let students have fun while acquiring knowledge in learning.

In recent years, music teaching has been well developed, which has promoted students' improvement in music. However, students' self-control ability is weak, lack of learning motivation, some learning methods are not suitable for themselves, and their cognition is not clear enough, which will result in half the effort. Liu Yang (2022) analyzed the current situation of vocal music teaching in China, clarified the requirements of contemporary teaching, explored and innovated new ways of teaching, and promoted vocal music teaching reform [17]. Guan Xiaofei (2022) said in the study that teaching is a process of mutual communication and understanding between teachers and students. In teaching, students should be promoted to think deeply and actively participate in learning [18]. Vocal music teaching under the new concept will help students understand their own shortcomings, improve their own strengths and interest in music, and strengthen students' understanding of vocal music. Changes in teaching methods, objectives, hardware facilities and other factors, teaching hardware facilities and other factors promote students to improve their comprehensive quality and better study vocal music.

3.2 Construction of Vocal Music Teaching Mode under the Deep Learning Model

Aesthetic education is an important part of contemporary quality education. Vocal music has become the learning object of most students with its own advantages. The traditional teaching method is rigid and single, which is not conducive to students' vocal music learning. The development of deep learning solves the disadvantages of traditional teaching mode. Deep learning is based on understanding the knowledge learned, guiding students to build understanding of knowledge and explore the law of music melody. The teaching method of deep learning is novel, paying attention to the interest of learning, cultivating students' autonomous

learning ability and deep perception, and stimulating students' interest in learning. Now the vocal music teaching mode under the deep learning model is constructed.

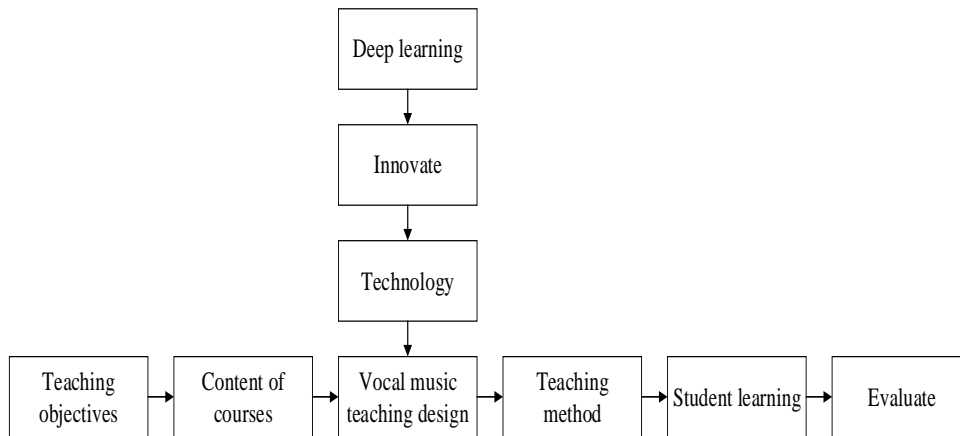


Figure 1: Vocal music teaching mode under the deep learning model.

In Figure1 before teaching, teachers should first establish teaching objectives and teaching contents, add in-depth learning methods to teaching, innovate teaching methods based on in-depth learning, improve and design teaching methods, and use advanced technologies, such as artificial intelligence and multimedia technology, to form a more suitable teaching method for teachers and students, so that students are interested in vocal music learning, and form a new teaching evaluation system. This teaching mode adds a deep learning model to the traditional teaching mode, which is conducive to teachers' more comprehensive and interesting vocal music teaching.

4 EXPLORATION OF TEACHING METHODS IN VOCAL MUSIC TEACHING

4.1 Traditional Vocal Music Teaching

Vocal music has always been a very popular major in professional colleges and normal universities. Social development requires this major, and more and more people study vocal music. Therefore, many people who love vocal music singing hope to enter professional colleges or normal colleges to study vocal music. With the continuous growth of the vocal music students in normal colleges in China, there are more or less problems in teaching to varying degrees. In this case, the traditional teaching reduces the quality of vocal music teaching. However, if you want to express the art through vocal music, you must learn the essence. If the teaching quality cannot be improved, it will restrict the development of vocal music art. Gao Chao (2022) analyzed and discussed the strategy of integrating traditional music culture into vocal music teaching, and said in the research that cultural confidence promotes the creative transformation and innovative development of excellent traditional Chinese culture, and the "re" integration of vocal music teaching in Colleges and universities and traditional music elements is inevitable [19]. Due to the continuous development of science and technology, traditional teaching is far from meeting today's teaching requirements, In this regard, Wu Li (2020) used the combination of Internet and teaching to explore its application, innovatively design the traditional vocal music teaching mode, content and system to enrich the vocal music teaching theory and teaching practice in Colleges and universities [20]. In the process of teaching, the differences of students in different situations in school and personality

characteristics also affect the use of teachers' teaching methods. Teachers should change their teaching mode at any time, which is conducive to learning music, but the existing educational problems still need further research and analysis. Nowadays, the development of vocal music has made great progress, but there are also great defects, especially in the development of teaching mode. In the process of teaching, teachers will have a mentality that even if the teaching mode is unreasonable, it will lead to low teaching quality, and not using it will also lead to low teaching quality. In contrast, if the workload of teachers is a little smaller without using the teaching mode, they will not use the teaching mode. For this, we should continue to innovate, keep up with the pace of social development, change the teaching mode and improve the teaching quality.

4.2 Deep Learning Vocal Music Teaching

The innovative development of science and technology has made contemporary information technology widely used in various fields, and some advanced teaching methods have emerged. Modern teaching means such as multimedia, language and computer have been put into use in some colleges and universities. Multimedia teaching means such as slide projection and three-dimensional imaging have entered college classroom teaching, which has changed the teachers' single teaching means of "blackboard + chalk" in the past, and strengthened the visualization and intuition of the classroom. Huang Chang (2022) studied and analyzed vocal music teaching and aesthetic consciousness from a multicultural perspective, indicating that there is a significant positive correlation between college vocal music teaching philosophy, teaching mode, teaching content, teaching practice and students' aesthetic feeling, aesthetic perception, and aesthetic representation from a multicultural perspective [21]. Under different school running backgrounds, there are some drawbacks and inconsistencies in the perspective of school education and scientific development. He Qiong (2022) pondered and discussed the teaching mode, and built a more scientific and developable teaching mode of independent college, a special applied university, based on the method, content, form and effect of vocal music teaching [22]. At present, most of the vocal music teaching is using multimedia for teaching. The visualization, intuition, vividness, interactivity and creativity of vocal music teaching are truly reflected, and the teaching efficiency has not only been significantly improved. The society puts forward diversified requirements for talents, such as practicality, innovation, practicality and applicability. We should give full play to the important role of vocal music teaching in talent training, mobilize students' subjective initiative and enthusiasm, stimulate students' desire and enthusiasm for learning, cultivate innovative consciousness and ability and the ability to self renew knowledge, cultivate students' active participation, willing to explore, diligent in practice, The ability to acquire new knowledge, solve problems, and communicate and cooperate is the top priority of this teaching model. It is an urgent task in contemporary development to cultivate diversified new talents with innovative spirit to meet the needs of social development in the new era.

5 EFFECTIVENESS ANALYSIS

5.1 Analysis of the Impact on Different Majors under the Background of Deep Learning

Under the premise of rapid social development, people's pursuit of spiritual and cultural levels is increasing, especially for the education of children, it is an all-round investment. The annual birth rate has gradually declined, and two families even take care of one child, and their care for children has even reached the point of responding to requests. Children's education starts from childhood. Different interest classes are registered one after another to improve children's understanding of learning interest. A relaxed and pleasant process can make children's psychology in the best state. Wang pan (2022) and others studied the school curriculum construction under the deep learning, mainly to stimulate students' internal motivation of deep learning, expand learning

methods, master the essential knowledge of learning, and strengthen the feedback mechanism of students' deep learning [23]. Different majors under in-depth learning take vocal music, piano, folk dance, basketball and taekwondo as the analysis objects, and analyze their five majors according to big data technology. The analyzed data are drawn in Table 1.

<i>Grouping</i>	<i>Vocal music</i>	<i>Piano</i>	<i>Folk dance</i>	<i>Basketball</i>	<i>Taekwondo</i>
<i>Deep learning</i>	89%	73%	66%	60%	51%

Table 1: Comparative Analysis of different majors under deep learning.

In Table 1, data of different majors show different data under deep learning. Taking vocal music as an example, the proportion of data is 89%, while the data value of Taekwondo is 51%. Compared with vocal music, vocal music accounts for a higher proportion of interest. It can be concluded that vocal music obviously occupies a higher position in the data analysis of the proportion of different majors. In order to observe and study more clearly and intuitively, Figure 3 is drawn according to the data in Table 1.

As shown in Figure 2, the data under the deep learning comparison can clearly see that the highest value of professional courses is vocal music. With the improvement of living standards, children's interest in majors is also changing. Under the harmonious background, the number of people learning Taekwondo should be reduced. More people learn vocal music, which is conducive to children's educational literacy and later academic development, and pay more attention to self-cultivation and education. Vocal music is one of the most popular majors of interest at present. The research and dissemination of vocal music has laid the foundation for the development of Chinese vocal music.

5.2 Analysis of the Influence of Vocal Music Teaching on Personality

In today's society, children in every family are only children, and their personalities are changing. Affected by congenital genetic and postnatal growth environmental factors, different people will have different thoughts, concepts and formulas to treat and deal with the same thing, so they form their own unique personality characteristics.

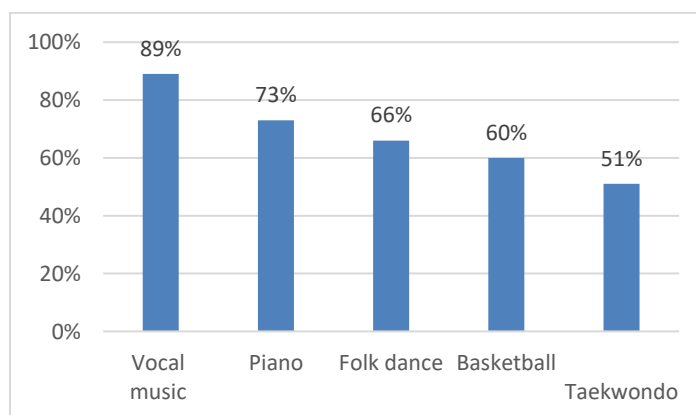


Figure 2: Comparison visualization of different majors under deep learning.

Therefore, Chen Xihong (2021) analyzed and adjusted the influence of personality in vocal music activities, discussed the influence of different personality psychological characteristics in vocal music teaching and learning, and the methods and ways of adjustment and solution, provide some methods for teachers and learners to use for reference, and help them improve in vocal music [24].Learners with different personalities will also get different effects when learning vocal music. Therefore, analyze the influence of different teaching modes on personality; the data obtained from the comparison of the two modes are drawn in Table 2.

Grouping	Stable mood	Willpower	Attitude	Temperament
Traditional teaching	46%	51%	53%	56%
Deep learning teaching	72%	79%	83%	72%
t	8.123	9.012	9.045	9.456
p	0.048	0.039	0.041	0.034

Table 2: Comparative analysis of different teaching modes on personality.

In Table 2, the stable emotion data under traditional teaching is less than 50%, but there is no significant change in willpower and attitude towards learning, and the change in learners' personal temperament is not great, while there are significant changes in emotion and learners' willpower, attitude towards learning and personal temperament under deep learning teaching, which is more conducive to learners' progress and will not fluctuate because of some small things, In terms of willpower, this is a process of tempering. According to statistical methods, there was a statistical difference of $t < 10.000$ and $p < 0.05$ between each pair of data. In order to better observe the changes of data, Figure 3 is drawn according to the data in Table 2.

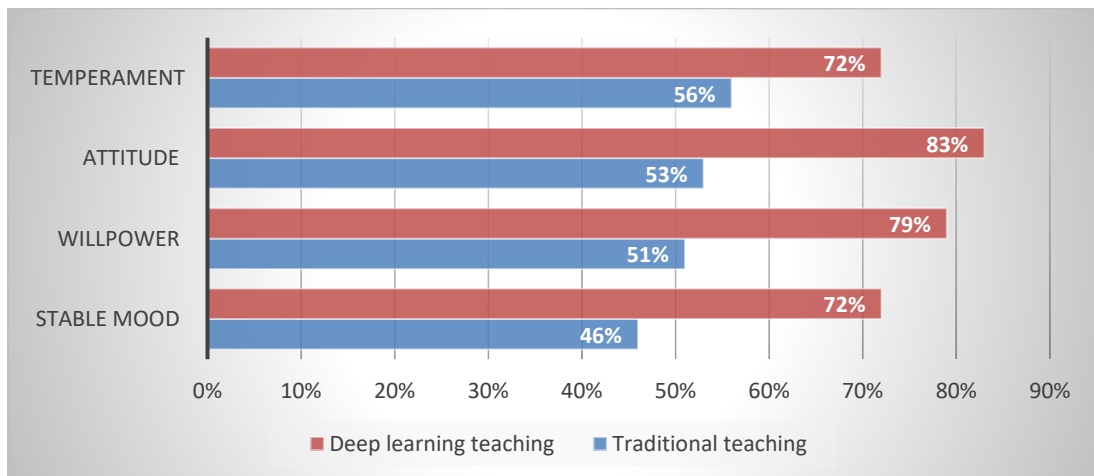


Figure 3: Visual analysis of different teaching modes on personality.

As shown in Figure 3, under the different teaching comparison of the two, in-depth teaching is more conducive to the development of learners. In the process of learning vocal music, we need to experience the inner world of the characters in the works by feeling the scenes of vocal music works, and feel their joy, anger and love music. By this, learners will also be imperceptibly affected by these views of right and wrong, outlook on life and values, so that the extreme factors in students' personality will be gradually reduced, forming a correct view of right and wrong, life and values, facing the people and things encountered with a correct and good attitude, and mastering the personality differences and their related impact on vocal music learning in vocal music learning plays a positive role in improving the teaching level and the effect of students.

5.3 Influence of Different Learning Models on Vocal Music Teaching Mode

Different teaching modes have a great impact on learners. Most of learners' learning progress and personal understanding come from teaching modes. In the vocal music teacher centered teaching mode, teachers have control. The teacher decides the topic to be discussed and sets the situation and turning point of the discourse, which directly affects the quality of students' response. With the continuous progress of big data technology, it gradually extends to the field of teaching. Therefore, Liang Jingning innovated and explored the new teaching mode, and the application of new technologies such as multimedia to the new mode is conducive to improving the efficiency and quality of classroom teaching and promoting modern teaching innovation [25]. Cuixiangping (2022) and others discussed the smart classroom teaching mode based on deep learning, promoted deep learning, and provided reference and guidance for the teaching of smart classroom [26]. According to the changes of the data of independent learning, personalized teaching and individualized teaching under different learning, the analyzed data are drawn in Table 3.

<i>Grouping</i>	<i>Autonomous Learning</i>	<i>Personality teaching</i>	<i>Teach students in accordance with their aptitude</i>
<i>Traditional learning</i>	58	63	42
<i>Deep learning</i>	89	91	85

Table 3: Influence of different learning models on vocal music teaching mode(%).

In Table 3, the data of autonomous learning and personalized teaching in traditional learning and therefore teaching are less than 70%, which is lack of deep learning. On the contrary, the data as a whole are higher than their learning methods, with significant effects, and there is a certain upward trend. Therefore, in order to promote the all-round development of learners and meet the needs of social development for music talents, we should scientifically and reasonably set up vocal music courses and teaching contents, build an effective vocal music depth teaching mode, and stimulate learners' enthusiasm. In order to observe the comparison between the two learning modes more clearly, Figure 4 is obtained according to the data in Table 3.

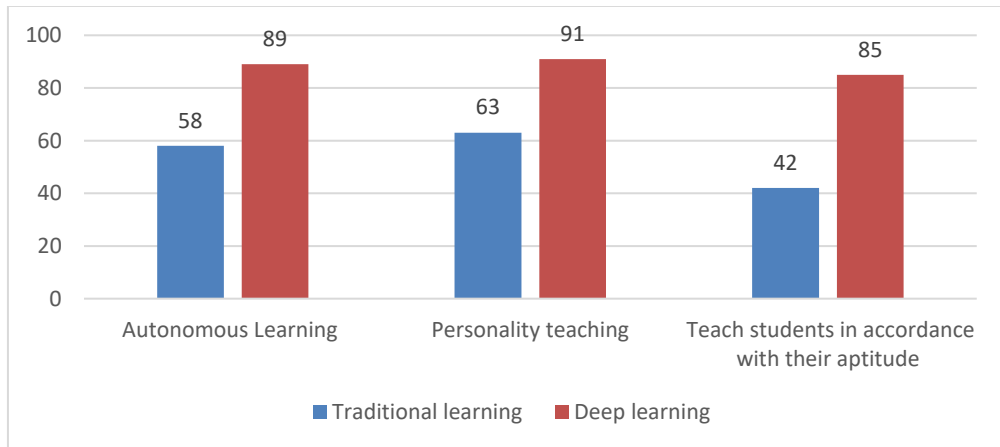


Figure 4: Visual analysis of vocal music teaching by different learning models (%).

As shown in Figure 4, in order to further put forward a better teaching mode for the cultivation of music talents, at present, music teaching needs to greatly improve the existing demand under the deep learning mode and better adapt to the development trend of the current era. It needs to innovate and develop the traditional learning music mode. The combination of the two modes can promote the progress of teaching, ensure the supply of talents, and make vocal music teaching embark on the road of sustainable development.

6 ANALYSIS ON THE CONSTRUCTION OF DIFFERENT TEACHING MODES

The teaching mode in our country is constantly changing and updating, and the progress of the times also changes in the field of education, so as to make greater contributions to the cause of education and provide the foundation for the cultivation of the next generation. Now, due to the "double reduction" policy implemented by the Education Bureau, many students' homework is also gradually reduced, and there is more time to learn their hobbies. Different interest classes are divided into individual teaching, collective teaching and group teaching modes. Vocal music teaching is no exception. Individual vocal music teaching is usually called vocal music lessons, and its teaching mode is one-to-one. In this teaching mode, vocal music teachers can not only understand students' singing conditions, but also clarify students' understanding of music, and finally realize teaching according to their materials. Although individual vocal music teaching has great flexibility and pertinence, most students also lack music foundation and have poor understanding of music. The vocal music collective class is to carry out collective teaching, which takes the students of a class as a whole in real-time teaching. This teaching mode imitates the theoretical teaching mode, allows more students to participate in learning within a certain period of time, and reduces the number of explanations of agreed content by teachers, which not only helps to improve the teaching efficiency, but also reduces the school running cost, and more effectively solves the shortage of teaching teachers. It increases the opportunities for students to learn and communicate with each other. In this mode, the main application objects are students with poor music foundation and relatively low singing ability or singing level. Under this teaching mode, students' comprehensive ability can be improved. Therefore, vocal music collective class is widely used in modern education.

There is another group teaching mode, which is different from the individual vocal music teaching mode and the collective vocal music teaching mode. In the same teaching time, the

number of people is more than that of the individual vocal music class, but less than that of the collective vocal music class. At the same time, the school will also determine the number of people according to its actual situation. The vocal music group teaching mode integrates the advantages of Jiang's vocal music collective teaching mode and vocal music individual teaching mode, which effectively solves the defect that the vocal music collective teaching mode is difficult to pay attention to the cultivation of students' personality. Teachers can know the shortcomings of students at the first time. However, the lack of teachers and equipment in many schools has also limited the development of vocal music primary school teaching mode. In the teaching process, because students have different levels of vocal music knowledge, we should determine the teaching mode from the actual situation of students and build a reasonable plan. There should be at least two collective courses every week. The main teaching content is set as simple and common singing methods and musical knowledge, so as to reduce the repetition rate of teaching content and strengthen the quality of students' learning. At the same time, with group classes, we should guide students according to their actual situation, improve students' singing ability, gradually deepen the learning content and gradually highlight the personalized characteristics, and collective teaching is difficult to meet the personalized development. Therefore, we should reduce the opening of collective teaching mode, and focus on Group teaching mode, which can focus on cultivating students' personality and strengthening students' understanding of music knowledge, constructing a perfect vocal music teaching mode can ensure the teaching effect, cultivate more professional talents for the country, and promote the development of vocal music education.

7 SUMMARY

Deep learning refers to the learning process in which students actively participate and acquire knowledge around the learning theme under the guidance of teachers. This study adds in-depth learning to the teaching process after the vocal music teaching mode, which can improve students' interest in learning vocal music, so that students can participate in the classroom, have a better understanding of vocal music, grasp the scientific professional vocal music knowledge more comprehensively and firmly, grasp the ideological method of learning vocal music, and form a positive learning motivation. The art of vocal music is diversified, and the teaching mode should also be diverse. Under the guidance of the theory of constructing the teaching mode, teaching has the method of teaching and the five fixed methods of teaching. Teachers should adopt diversified teaching methods to provide students with teaching modes of different levels, forms and specifications, so as to meet the students' multiple choice needs for learning and singing, so as to cultivate more and better vocal talents for the society. Deep learning requires teachers to have advanced and innovative ideas, using advanced teaching instruments and methods, guide students to think and experience the complex ideological and emotional content in teaching, lead students to grow into thoughtful and capable people, and contribute to social development.

DATA AVAILABILITY

The data underlying the results presented in the study are available within the manuscript.

CONFLICTS OF INTEREST

There is no potential conflict of interest in our paper, and all authors have seen the manuscript and approved to submit to your journal. We confirm that the content of the manuscript has not been published or submitted for publication elsewhere.

Chunli Ruan, <https://orcid.org/0000-0002-4605-3146>

Chen Lin, <https://orcid.org/0000-0001-5692-6222>

REFERENCES

- [1] Caixuejun.: Innovative ways of vocal music teaching mode for preschool education majors, *Drama House*, (33), 2021, 122-123.
- [2] Chen, X.; Tian, L.: The influence and adjustment of personality psychological characteristics in vocal music activities -- Taking Jung's introversion and extroversion personality typology as an example, *Contemporary Music*, (01), 2021, 174-176.
- [3] Chen, Y.: Rethinking on the elegant and vulgar view of music in the Northern Song Dynasty, *Journal of Central Conservatory of Music*, (02), 2022, 108-119.
- [4] Colin.: Cultural origin and historical basis of the development of Chinese vocal music, *People's Forum*, 18(30), 2021, 107-109.
- [5] Cui, X.; Zhang, Hanqi.; Du, Yuxia.; Qian, Jiangming.; Su, Wei.: Research on the construction of smart classroom teaching mode in colleges and universities from the perspective of deep learning, *Digital Education*, 8 (03), 2022, 34-41.
- [6] Gao, C.: Superb Discussion on the strategy of integrating traditional music culture into vocal music teaching in secondary vocational schools, *Knowledge Library*, (02), 2022, 91-93.
- [7] Guan,X.: Create a harmonious classroom to promote in-depth learning, *Hubei Education (education and teaching)*, (06), 2022, 73.
- [8] He, Q.: Scientific Development -- Thoughts on building a new vocal music teaching model in Independent Colleges, *Journal of Heihe University*, 13 (05), 2022, 104-106.
- [9] Huang, C.: Research on the inline mechanism of vocal music teaching and aesthetic consciousness in Colleges and universities from the perspective of multiculturalism, *Art Education*, (06), 2022, 70-73.
- [10] Li, X.: Research on the construction of vocal music teaching mode in Mu class in the information age, *Music Life*, (01), 2022, 76-78.
- [11] Liang, J.: Exploration on the innovation of vocal music teaching mode in Colleges and Universities -- Comment on Research on the construction and innovation of vocal music teaching mode in Colleges and universities, *China University of Science and Technology*, (06), 2022, 114.
- [12] Liu, H.: Exploration and practical research on the online and offline mixed teaching mode of "Internet +" vocal music, *Art Evaluation*, (02), 2022, 126-128+136.
- [13] Liu, Y.: Vocal music teaching reform under the background of new curriculum -- Comment on Research on vocal music teaching and music education in Colleges and universities, *Chinese Journal of education*, (01), 2022, 120.
- [14] Lu, X.: Analysis of vocal music teaching mode of preschool education major in Technical Colleges Based on group cooperation, *Employment and Security*, (22), 2021, 10-12.
- [15] Lu, S.: A comparative study of court music institutions in Han and Tang Dynasties, *Art evaluation*, (06), 2022, 23-25.
- [16] Luo.: rainforest From the unearthed cultural relics, read the imprint of the emergence and development of ancient Chinese music, *Lingnan Music*, (06), 2021, 66-71.
- [17] Ma, R.: On the development and reform of "new music" in the West in the 20th century, *Jingu Cultural Creation*, (06), 2021, 95-96.
- [18] Sun, P.; Zhu, L.: exploring the influence of eunuch singers on the development of vocal music, *Drama House*, 17(05), 2022, 63-64.
- [19] Sunwanjing.: Vocal music teaching mode in multimedia teaching environment -- Comment on improving effective vocal music teaching under the condition of information technology, *Chinese Scientific Papers*, 17(05), 2022, 602.

- [20] Tian, Y.: Research on the innovation of vocal music teaching mode in preschool education based on "Internet +," *Computer knowledge and technology*, 18 (03), 2022, 128-129+132.
- [21] Wang, P.; Hu, B.: Research on the construction of high-quality school curriculum pointing to deep learning, *Educational Science Forum*, (20), 2022, 13-17.
- [22] Wang, Y.: From phenomenon to essence -- Rethinking the "struggle between foreign countries" in the history of Chinese vocal music development, *Drama House*, (02), 2022, 62-64.
- [23] Wu, L.: Research on the application of "Internet + education" in traditional vocal music teaching, *Voice of the Yellow River*, (17), 2020, 70-71.
- [24] Wu, W.: Research on vocal music teaching mode and its innovative development in Colleges and universities, *New curriculum research*, (09), 2022, 35-38.
- [25] Xu, H.; Cao, J.: Innovating vocal music teaching mode and improving students' musical literacy -- Comment on Research on vocal music teaching and music education in Colleges and universities, *Journal of Shanxi University of Finance and economics*, 43 (12), 2021, 138.
- [26] Xu, Li.: The development of aria in romantic opera in the history of western music, *Art review*, (12), 2022, 153-155.