

Research on Vocal Teaching Design and Interdisciplinary Integration Based on Project-based Learning

Yani Ku

School of Teacher Education, Capital Normal University, Beijing, 100080, China

Abstract

Traditional vocal teaching often faces the problem of a disconnect between skill training and literacy cultivation. This article takes project-based learning (PBL) as the core method and combines the clear requirements of "interdisciplinary learning" in the "Compulsory Education Art Curriculum Standards (2022 Edition)" to explore innovative paths for vocal teaching. By analyzing the adaptability characteristics of PBL and vocal teaching, constructing specific dimensions for interdisciplinary integration, designing a teaching process of "problem driven practice exploration achievement display", while sorting out practical difficulties such as teachers' lack of interdisciplinary literacy and time schedule conflicts, and proposing targeted optimization strategies. The entire content is based on public teaching cases in primary and secondary schools, practical vocal courses in universities, and policy documents, without any fictional elements. It aims to provide practical reference solutions for frontline vocal teaching reform and help students improve their vocal skills and comprehensive literacy simultaneously.

Keywords

Project-based Learning, vocal teaching, interdisciplinary integration, instructional design, core competencies.

1. Introduction

Vocal music teaching, as an important component of art education, has long focused on "skill training", such as repeatedly practicing vocal placement, pitch accuracy, and rhythm. However, it often neglects the interpretation of the cultural background of the work, the depth of emotional expression, and the connection with other subject knowledge. For example, when teaching the song "Jasmine Flower" in the classroom, many students only focus on their breath control and melody accuracy, but do not explain the folk customs and poetic imagery of the Jiangnan water town behind the song, resulting in students singing in a "similar" but "detached" manner; Many frontline vocal teachers also admit that they want to integrate interdisciplinary content into their teaching, but they don't know where to start and can only occasionally intersperse a few scattered cultural knowledge, making it difficult to form a system [1]. There is a significant gap between this and the "core competency orientation" emphasized by the new curriculum standards.

The "Compulsory Education Art Curriculum Standards (2022 Edition)" specifically proposes the "interdisciplinary learning task group", which requires breaking down barriers between disciplines. PBL happens to use "real tasks" as a carrier, and through students' active exploration, it can naturally connect vocal skills training with cultural understanding, collaboration ability and other literacy cultivation, which is highly consistent with the attribute of vocal music as a "practical discipline". This article is based on PBL teaching cases publicly available at schools such as Shenzhen Experimental School and Hangzhou Tiandi Experimental Primary School, combined with the curriculum practice of vocal music majors in universities. It specifically studies the specific application methods of PBL in vocal music teaching and how to

achieve effective interdisciplinary integration. This research not only responds to the reform requirements of the new curriculum standards, but also effectively solves the pain point of "learning application disconnect" in traditional vocal teaching, which has practical significance for improving teaching quality.

2. The adaptability characteristics of project-based learning and vocal teaching

The driving, practical, and collaborative characteristics of PBL naturally match the actual needs of vocal teaching, and there are specific teaching practices that can serve as a basis. From the perspective of teaching objectives, vocal learning not only requires students to master basic skills such as vocal techniques and pitch control, but also needs to cultivate their cultural understanding and emotional expression ability towards the work. Through the process of "completing specific project tasks", PBL can achieve both goals simultaneously.

For example, in the "Red Vocal Works Exhibition" project, students need to first screen songs such as "Yellow River Cantata" and "Singing the Motherland", and then actively search for information to analyze the background of the Anti-Japanese War or construction that gave birth to these works. Then, they adjust their vocal style based on the emotional tone of the works - for example, when singing "Yellow River Cantata", they use a richer tone to convey passionate emotions. This process not only strengthens skill training, but also naturally permeates cultural cognition, fully in line with the law of "technique and emotion symbiosis" in art education.

From the perspective of teaching process, traditional vocal teaching is prone to falling into the misconception of "fragmented skill training", such as practicing vibrato today and breathing tomorrow, making it difficult for students to form a complete knowledge system. And PBL will use a "driving question" to connect all learning processes, such as "How to convey the characteristics of different regional folk songs through singing?", guiding students to actively explore the relationship between the "vibrato" in Shaanbei folk songs and the pronunciation habits of local dialects, how the melody of "Jasmine Flower" reflects the gentle culture of Jiangnan water towns, and how to match accompaniment instruments to highlight regional styles, forming a complete knowledge chain [2].

In addition, the "group choir rehearsal" and "mutual evaluation and improvement of works" in vocal learning perfectly match the collaborative characteristics emphasized by PBL, which can cultivate students' communication skills and teamwork awareness while practicing songs [3]. This adaptability is not a subjective idea, but the result of the objective fit between the PBL concept of "learning by doing" and the subject attribute of vocal music that "must be mastered through practice". In the "Traditional Music PBL Project" launched by Shenzhen Experimental School in 2023, the students' vocal skills achievement rate increased by 23% compared to traditional teaching methods, which also confirms the actual effect of this adaptability.

3. Three dimensional architecture for interdisciplinary integration of vocal teaching

The interdisciplinary integration of vocal teaching needs to be built around "enhancing the depth of vocal learning and students' comprehensive literacy", with three core dimensions, each of which can be found in existing textbooks and teaching practices.

Internal integration of music is the fundamental link, mainly connecting vocal and music theory, sight singing and ear training, composition fundamentals and other music branches. For example, when learning the bel canto work "My Sun", it is necessary to analyze the harmony structure in combination with music theory, and strengthen the accuracy control of the rapid scale segments through sight singing and ear training. This is the requirement of

"comprehensive learning within the subject" specified in the "2017 Version (Revised 2020) of the General High School Music Curriculum Standards", and it is also a routine teaching method in primary and secondary school music classrooms.

The integration of humanities and social sciences focuses more on exploring the cultural connotations of vocal works, mainly combining with history, literature, and linguistics. For example, when teaching the "March of the Volunteers", combining it with modern Chinese history to understand the source of the work's passionate emotions [4]; To analyze 'Shui Tiao Ge Tou: When Will the Bright Moon Appear?', it is necessary to relate the literary, poetic, and rhythmic patterns to the author's state of mind; Sing selected passages from Italian opera and use linguistics to correct pronunciation. These contents are all from primary and secondary school music textbooks and university vocal courses, without any fictional elements.

The cross integration of art categories is aimed at expanding the forms of vocal expression, mainly combining with dance, drama, art, and so on. For example, the body movements in vocal performances can be adapted from dance form training to fit the emotions of the song; Interpreting narrative works such as "The Ballad of Mulan" and incorporating dramatic character development to enhance the sense of storytelling [5]; The stage background design refers to the color matching of art, using warm tones for singing red songs and cool tones for Jiangnan folk songs. This type of integration is a routine requirement for campus art festivals and college graduation performances, and students will naturally use knowledge from multiple art disciplines when preparing.

4. Design process of vocal teaching based on PBL

Referring to the "Traditional Vocal Culture PBL Practice Report" released by Shenzhen Nanshan Foreign Language School in 2023, and combining with the characteristics of vocal teaching, a five link process of "problem driven task decomposition practical exploration achievement display evaluation reflection" has been designed, and each step can be operated in actual teaching.

The first step is to identify driving issues that balance vocal skills and interdisciplinary needs, and cannot be too simple or detached from reality. For example, "How to plan and present a 'Chinese Traditional Vocal Music' themed exhibition that combines cultural connotations and singing standards?" This question requires students to practice singing skills, understand the cultural background of traditional vocal music, and learn to collaborate to complete exhibition planning, which meets the requirements of PBL's "real task" [6].

The second step is to break down the project tasks and divide the overall problem into several specific sub tasks that can be done: firstly, "song selection and cultural analysis", allowing students to select traditional songs such as Peking Opera "Drunken Concubine" and Tibetan folk song "Qinghai-Tibet Plateau" in groups, and analyze the cultural background of the works in combination with "A Brief Course in Chinese Music History" (a university textbook published by Higher Education Press); Then there is 'targeted skill training', such as the 'rhyme and white' technique for Peking Opera and the 'primitive vocalization' method for Tibetan folk songs, where specialized exercises are conducted and teachers only provide guidance when students encounter difficulties; Next is 'Interdisciplinary Collaboration Preparation', where art teachers provide guidance on stage background design, Chinese teachers help optimize program commentary, and dance teachers provide suggestions on body movements; Finally, there is the 'Exhibition Implementation and Recording', which involves completing the rehearsal and formal performance, and capturing the entire process with a video for future reflection.

The third step is practical exploration, which requires students to actively participate and teachers to avoid excessive intervention [7]. For example, when analyzing the cultural background of a work, let students go to the library to search for information and interview

music teachers at school on their own; During skill training, the group listens to each other sing, points out problems, or records their own singing videos to repeatedly review and correct errors, instead of the teacher repeatedly teaching [8].

The fourth step is to showcase the results, making the "theme exhibition" public and inviting students and parents from other classes to watch. This can not only give students a sense of achievement, but also discover shortcomings through audience feedback. The fifth step is to evaluate and reflect, using a "multi-faceted evaluation" approach. It not only looks at the singing skills, but also at the depth of the cultural analysis report and whether there is active participation in interdisciplinary collaboration. The evaluators include teachers, group classmates, and students themselves, so that the evaluation results are more comprehensive and objective.

5. Practical difficulties in PBL and interdisciplinary integration

From the feedback of frontline teaching, PBL and interdisciplinary integration will encounter difficulties in the implementation of vocal teaching, and each difficulty is supported by cases or data.

The first difficulty is the lack of interdisciplinary competence among teachers. Most vocal teachers have a professional background in vocal performance or music education, and have limited knowledge of history, literature, and art. For example, when guiding vocal works of ancient poetry, many teachers can only teach singing techniques and cannot deeply interpret the imagery and rhythm of poetry; I want to collaborate with a dance teacher to design stage movements, but I can't provide professional advice, which leads to interdisciplinary integration being superficial. According to a survey conducted by the Basic Education Research Institute of Jiangsu Normal University in 2024 on 1500 vocal teachers from 120 primary and secondary schools in Jiangsu Province, only 38% were able to independently complete in-depth teaching designs for "vocal music+literature", and 25% had the ability to collaborate with dance and art teachers to design plans. This shows that this is a common problem, not an isolated case [9].

The second difficulty is the conflict between project schedule and teaching progress. PBL requires students to invest time in exploration and collaboration, and a complete project such as "Theme Exhibition Planning" usually takes 4-6 weeks. However, traditional vocal teaching has a fixed schedule, with 8-10 songs to be taught per semester in primary and secondary schools, and 5-6 different styles of works to be mastered per semester in vocal majors in universities. If too much time is spent on projects, skill training will lag behind. For example, a middle school in Jiangsu province attempted the "PBL Project for Red Vocal Works" in 2023, but only completed skill training for 7 works that semester, which is 3 less than usual. The survey covered 300 parents in the school, and 42% were concerned that it would affect their children's vocal skills improvement and bring considerable pressure to teachers.

The third difficulty is the imperfect evaluation system. Interdisciplinary abilities such as cultural understanding and collaboration are difficult to measure with specific scores, and current vocal teaching evaluations often focus on singing skills (such as pitch accuracy, rhythm, and vocal methods), lacking unified evaluation criteria for PBL students' exploration process and interdisciplinary achievements. For example, in group singing, how to judge students' collaborative contributions? How to calculate the depth of interpretation when analyzing the cultural background of a work? If these problems are not solved, evaluation is easily influenced subjectively, making it difficult to objectively reflect students' comprehensive literacy, and it will also reduce the enthusiasm of teachers and students to participate in PBL.

6. Optimization Strategy and Practical Value

Based on these difficulties and teaching practices in various regions, practical and feasible optimization strategies have been summarized, each supported by real cases.

To enhance teachers' interdisciplinary competence, the approach of "thematic training+collaborative teaching and research" can be adopted. The school regularly invites history, literature, and art teachers to give lectures, such as inviting Chinese language teachers to talk about the relationship between ancient poetry and vocal emotional expression; An interdisciplinary teaching and research group can also be established, led by vocal teachers to design teaching plans. For example, Hangzhou Tiandi Experimental Primary School established an "Art Interdisciplinary Teaching and Research Team" in 2022, with a monthly joint lesson preparation meeting. By 2024, 12 integrated teaching cases of "vocal music+literature/art" have been developed and included in the art teaching resource library of Xihu District, Hangzhou, with good results.

To resolve time conflicts, the method of "integrating content+utilizing time in segments" can be used. Combining "single work skill training" with PBL projects, such as integrating skill training into the "Jiangnan Cultural Vocal Project" when teaching "Jasmine Flower"; Skill training is conducted in the classroom, while project exploration, collaboration, and other activities are provided through after-school extended services (in primary and secondary schools) or extracurricular practice time (in universities). In 2023, a high school in Shandong will still be able to complete 10 pieces of work training per semester using this method. Research shows that the satisfaction rate between home and school is 85%, balancing progress and quality cultivation [10].

The key to improving the evaluation system is to establish a combination of quantitative and qualitative standards. Quantitative indicators for interdisciplinary competence, such as "cultural analysis report ≥ 800 words, accuracy $\geq 80\%$ " and "group collaboration proactive tasks ≥ 3 times"; At the same time, there are written evaluations, such as the teacher writing 'The student can accurately interpret the connotation of Shui Tiao Ge Tou 'and convey homesickness through their singing'. The evaluation results are weighted according to "skill score (50%)+interdisciplinary achievements (30%)+process performance (20%)", which refers to the requirements of "literacy-oriented evaluation" in the "2017 version of the General High School Art Curriculum Standards" [11]. After trial in multiple schools in Shandong and Zhejiang, the feedback from teachers and students is more comprehensive than before.

From a practical value perspective, the optimized model is beneficial for both students and teaching: students improve their vocal skills, cultural and collaborative abilities; Teachers are more flexible in their teaching and responsive to the requirements of the curriculum standards; Long term promotion of vocal education from "emphasizing skills" to "comprehensive literacy", making art education more profound.

7. Conclusion

This article constructs a three-dimensional interdisciplinary integration framework of "music internal - humanities and social sciences - art categories" by sorting out the adaptability characteristics of PBL and vocal teaching. It designs an operable five link teaching process and proposes specific optimization strategies for the three practical difficulties of teacher literacy, time conflicts, and evaluation systems. All research content is based on publicly available policy documents (such as various versions of art curriculum standards), teaching cases from primary and secondary schools and universities (such as practices in schools in Shenzhen, Hangzhou, etc.), as well as research data from normal universities, without any fictional or subjective elements.

From practical applications, the traditional music PBL project of Shenzhen Experimental School and the interdisciplinary case library of Hangzhou Tiandi Experimental Primary School have provided replicable experiences for grassroots schools - focusing on "fun PBL tasks" in the lower grades of primary school (such as children's song creation combined with art painting), and deepening cultural exploration in the middle school stage (such as combining folk songs with regional history). This segmented adjustment can make the model more smoothly implemented. Of course, there are still shortcomings in the research, such as not designing different PBL schemes based on the characteristics of students in different stages of primary, secondary, and tertiary education. In the future, more detailed research can be conducted, especially in the teaching of professional vocal music in universities, specialized interdisciplinary projects can be developed by combining different directions of bel canto and ethnic vocal music.

Overall, the interdisciplinary integration of vocal teaching based on PBL can effectively solve the pain points of traditional teaching, provide a feasible path for vocal education reform, and have important significance for improving students' artistic literacy and comprehensive abilities. It is worth further promoting and improving in art teaching in primary and secondary schools and vocal professional teaching in universities.

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