

## *Original Paper*

# Application of Digital Teaching Resources in Blended Online and Offline Vocal Music Teaching

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### **Abstract**

*Against the backdrop of the digital transformation of education, vocal music teaching is evolving towards technology empowerment, virtual-real integration, and collaborative efficiency. As a pivotal carrier that integrates the convenience and repeatability of online resources with the merits of face-to-face guidance and real-time error correction in offline teaching, the blended online and offline teaching model, through its in-depth combination with digital teaching resources, offers an effective solution to prominent predicaments in traditional vocal music teaching, such as limited resources, inadequate demonstration, delayed feedback, and weak personalized training. Starting from the types and core characteristics of digital vocal music teaching resources, this paper systematically analyzes their application value and theoretical support in blended online and offline vocal music teaching. It constructs a scientific and feasible application path in conjunction with core teaching links including vocal music skill training, work processing, and stage performance, dissects the existing problems in the current application process, and proposes targeted optimization strategies. This study aims to provide theoretical reference and practical insights for the digital transformation of vocal music teaching, the improvement of teaching quality, and the innovation of talent training models in the field of art education.*

### **Keywords**

*Digital teaching resources, Vocal music teaching, Blended online and offline teaching, Art education*

## **1. Introduction**

With the in-depth integration of digital technology, network technology and education and teaching, educational digitalization has become a core trend in the reform and development of modern education. As an indispensable part of art education, vocal music education is confronted with both opportunities and challenges brought by digital transformation. Vocal music is a performing art featuring strong practicality, aesthetics and experience, whose teaching process highly relies on teachers' oral instruction

and heart-to-heart transmission, as well as students' auditory perception, muscle control and emotional expression. The traditional vocal music teaching model centers on offline classrooms, where teachers guide students to master vocal skills and comprehend the connotation of musical works through on-site demonstration and one-on-one error correction. Nevertheless, this model has obvious inherent limitations. At present, the application of digital teaching resources in China's vocal music education field has been gradually launched. Some colleges, universities and teachers have attempted to combine online resources with offline teaching to explore the blended teaching model. However, in practice, there remain prominent problems such as insufficient in-depth application of resources, non-standard teaching processes, inadequate digital literacy of teachers, and uneven quality of digital resources. These issues lead to the failure to give full play to the value of digital resources and the failure to achieve the expected effect of blended teaching. Based on this, an in-depth study on the application of digital teaching resources in blended online and offline vocal music teaching, and the construction of a scientific and rational application system to solve the practical problems, are of great theoretical and practical significance for promoting the reform of vocal music teaching, improving teaching quality, and cultivating high-quality vocal music talents.

## **2. The Core of Blended Online and Offline Teaching**

Blended online and offline teaching is a student-centered teaching model that organically integrates online independent learning with offline classroom practical training. It gives full play to the advantages of both online and offline teaching, and realizes the integrated unification of teaching resources, teaching processes and teaching evaluation. Its core connotation is "integration". Through scientific teaching design, it combines the convenience and repeatability of online resources with the advantages of face-to-face guidance, real-time error correction and emotional communication in offline teaching, so as to optimize the teaching process and improve the teaching effect.

As an important component of blended teaching, online teaching mainly undertakes the functions of pre-class preview, post-class consolidation, resource sharing and independent learning. Online teaching breaks the constraints of time and space, enabling students to obtain teaching resources through network platforms at any time and anywhere, complete preview tasks, submit assignments and participate in interactive communication. Meanwhile, online teaching realizes the efficient sharing of resources, allowing students to access more high-quality teaching resources and make up for the shortage of offline teaching resources. In addition, online teaching can record students' learning trajectories and practice data, providing data support for teachers to grasp students' learning status and carry out personalized guidance.

Offline teaching is the core link of blended teaching, mainly undertaking the functions of skill training, real-time error correction, emotional communication and stage practice. Vocal music teaching is highly practical. The mastery of core skills such as breath control, laryngeal position adjustment, resonance application, and articulation requires teachers' face-to-face demonstration, guidance and error correction.

Offline classrooms can provide students with real teaching scenarios. Through on-site demonstration, teachers enable students to intuitively perceive the application of singing skills; through one-on-one guidance, teachers timely correct students' mistakes and help them master core vocal skills. At the same time, offline classrooms facilitate emotional communication between teachers and students and among students, create a positive learning atmosphere, and stimulate students' learning interest. In addition, offline classrooms can also organize group cooperation, simulated stage performance and other activities to improve students' stage expression ability and team cooperation ability.

### **3. Theoretical Support for Blended Online and Offline Teaching**

The application of digital teaching resources in blended online and offline vocal music teaching is supported by multiple theories, including constructivist learning theory, connectivism learning theory, the formation law of artistic skills and formative assessment theory. These theories integrate and complement each other, providing scientific theoretical guidance for the development of blended vocal music teaching.

#### *3.1 Constructivist Learning Theory*

Constructivist learning theory is one of the core theoretical supports for blended teaching. This theory holds that learning is a process in which students actively construct knowledge systems. Students gradually build their own cognitive frameworks of knowledge through interaction with the learning environment and communication with others. In blended vocal music teaching, digital teaching resources provide students with a rich and diverse learning environment and interactive carriers. Students actively construct vocal music skills and theoretical knowledge through online independent learning such as watching teaching videos, listening to demonstration audios and practicing with AI tools. In offline classrooms, through in-depth interaction with teachers and communication with classmates, students constantly improve their knowledge systems, correct mistakes in the learning process, and further polish their singing skills.

#### *3.2 Connectivism Learning Theory*

Connectivism learning theory emphasizes that learning is a process of connecting knowledge nodes and building personalized knowledge networks, and holds that knowledge exists in the interconnection of various network nodes. Students obtain new knowledge and improve their comprehensive abilities by connecting with knowledge nodes and other learners in the network. In blended vocal music teaching, digital teaching resources construct a huge and comprehensive knowledge network, including multiple knowledge nodes such as teaching videos, demonstration audios, theoretical documents and online teaching platforms. Through online platforms, students connect these knowledge nodes to obtain abundant high-quality teaching resources. Meanwhile, through online interactive communication and offline group cooperation, students establish effective connections with teachers and classmates, share learning experience, solve learning problems, build their own personalized vocal music learning networks, and realize the rapid acquisition of knowledge and the improvement of professional abilities.

### *3.3 The Formation Law of Artistic Skills*

The formation law of artistic skills is an important theoretical basis for blended vocal music teaching. The formation of vocal music skills is a long-term, step-by-step and progressive process, which can be divided into several stages such as imitation, practice, error correction, consolidation and improvement. Digital teaching resources can provide targeted support for all stages of vocal music skill formation: in the imitation stage, students imitate the singing skills of famous singers and professional teachers by watching demonstration videos and listening to demonstration audios; in the practice stage, students conduct repeated and targeted practice and self-test through AI tools, virtual accompaniment and other digital resources; in the error correction stage, teachers timely correct students' wrong singing habits and skills through online comments and offline face-to-face guidance; in the consolidation and improvement stage, students constantly optimize their singing skills and improve their artistic expression ability through online extended resources and offline stage practice.

### *3.4 Formative Assessment Theory*

Formative assessment theory is an important theoretical support for the optimization of the evaluation system in blended vocal music teaching. This theory holds that teaching evaluation should run through the entire teaching process, focus on students' learning progress and process performance, and use evaluation results to guide and adjust teaching activities in a timely manner. In blended vocal music teaching, digital teaching resources provide technical support for the implementation of formative assessment. Teachers can track and record students' entire learning process through online platforms, including online learning duration, preview completion quality, practice data and interactive performance, and conduct comprehensive and objective evaluation of students' learning process, so as to realize the organic combination of process evaluation and result evaluation.

## **4. Application Value of Digital Resources in Blended Vocal Music Teaching**

The in-depth integration of digital teaching resources with blended online and offline teaching has brought all-round innovation and transformation to vocal music teaching. It not only enriches the teaching content and optimizes the teaching process, but also improves the teaching efficiency and quality, and effectively promotes students' personalized development and the improvement of artistic accomplishment. Its application value is mainly reflected in the following four aspects.

### *4.1 Enrich Teaching Content and Realize the Sharing of High-quality Resources*

Restricted by factors such as regions, teaching staff and venues, traditional vocal music teaching is faced with the problem of relatively scarce teaching resources. Especially for students in grass-roots colleges and universities and remote areas, it is difficult to access high-quality resources such as singing demonstrations by famous artists at home and abroad, professional teaching courses and abundant musical works resources, resulting in uneven teaching quality of vocal music education in different regions. The application of digital teaching resources integrates high-quality vocal music teaching resources at home and abroad through network platforms, realizing the efficient sharing and wide

dissemination of resources, and enabling students in different regions and at different learning levels to equally obtain high-quality vocal music teaching resources, which effectively narrows the gap of vocal music education resources between different regions and institutions.

#### *4.2 Strengthen Skill Training and Improve the Efficiency of Independent Practice*

The improvement of vocal music skills is inseparable from a large number of repeated and targeted practice. However, in traditional vocal music practice, students often lack effective professional guidance, it is difficult to find their own singing problems in time, and the practice is highly blind, resulting in low practice efficiency. The application of digital teaching resources provides accurate and professional guidance for students' independent practice, which can effectively improve the efficiency of vocal music practice and reduce the blindness of practice.

On the one hand, the repeatability of digital resources allows students to repeatedly listen to and watch teaching videos and demonstration audios according to their own learning needs, imitate singing skills sentence by sentence, practice repeatedly, and consolidate the learned content. On the other hand, tool-based digital resources such as AI intonation/rhythm detection software and audio editing software can provide accurate and real-time feedback for students' practice, enabling students to clearly understand their own problems in intonation, rhythm, breath and other aspects, and carry out targeted correction and practice.

#### *4.3 Optimize the Teaching Process and Improve the Classroom Utilization Rate*

Traditional vocal music teaching mostly adopts a linear teaching model of "no pre-class preview, centralized in-class teaching and no post-class consolidation". Limited by the short classroom time, teachers find it difficult to take into account the personalized learning needs of each student, the teaching process is not reasonable, and the classroom utilization rate is low. The combination of digital teaching resources and blended teaching model has broken the traditional linear teaching process, and constructed a circular teaching process of "pre-class online preview - in-class offline practical training - post-class online consolidation". This teaching process optimizes the allocation of teaching time and space, enables teachers to focus on solving students' key and difficult problems in offline classrooms, and carry out targeted personalized guidance, which effectively improves the classroom utilization rate and realizes the teaching concept of "teaching students in accordance with their aptitude".

#### *4.4 Improve the Evaluation System and Promote the All-round Development of Students*

The evaluation methods of traditional vocal music teaching are mainly based on summative evaluation, which focuses on students' on-site singing performance at the end of the term, ignoring the progress and accumulation of students in the learning process. Such a single evaluation method is difficult to fully and objectively reflect students' vocal music skill level and actual learning effect, and also cannot effectively stimulate students' internal learning motivation. The application of digital teaching resources has broken the limitations of traditional evaluation methods, and provided technical support for the construction of a diversified and comprehensive vocal music teaching evaluation system. It realizes the organic combination of online and offline evaluation, process and result evaluation, and teacher evaluation,

student self-evaluation and peer evaluation, which can comprehensively and objectively reflect students' learning process and effect, and effectively promote the all-round development of students' vocal music skills and artistic accomplishment.

### **5. Application Path of Digital Resources in Blended Online and Offline Vocal Music Teaching**

Combined with the core links of vocal music teaching and the characteristics of blended teaching, the application of digital teaching resources in blended online and offline vocal music teaching should clarify the teaching objectives, teaching content and resource application methods of each link, take students as the center, and integrate digital resources into the entire teaching process, so as to ensure the full play of the value of digital resources and effectively improve the effect of blended teaching.

#### *5.1 Pre-class: Online Preview to Lay a Solid Foundation and Clarify Learning Difficulties*

Pre-class preview is the basic link of blended teaching, whose core goal is to make students familiar with the teaching content, master the basic knowledge points, clarify their own learning difficulties, and lay a solid foundation for offline classroom practical training. In this link, teachers should reasonably select and push targeted digital resources according to the teaching objectives and content, and guide students to carry out independent and effective preview to ensure the preview effect.

First, teachers release targeted preview resources and detailed learning task lists through the learning management platform. The preview resources include teaching micro-lessons, demonstration singing audios and videos, interactive sheet music, and background information of musical works. Teaching micro-lessons focus on the core knowledge points of the course, such as vocal skills and melody analysis of works, with a duration of 10-15 minutes, concise content and prominent key points, facilitating students to quickly master the basic knowledge; demonstration singing resources select standardized versions with styles matching the teaching content, including teachers' on-site demonstration singing and classic interpretations by famous artists, enabling students to intuitively feel the melody, rhythm and emotional expression of the works; interactive sheet music marks the rhythm, meter, strength and weakness changes of the works, facilitating students to be familiar with the sheet music and conduct preliminary follow-up singing; the background information of works includes the creative background, author introduction and artistic connotation of the works, helping students understand the works in depth and laying a foundation for subsequent emotional expression in singing. The learning task list clearly defines the preview objectives, content, requirements and submission time, guiding students to carry out targeted preview activities.

Second, students carry out independent preview activities in accordance with the learning task list and make rational use of various digital resources. Students log in to the learning management platform through mobile phones, computers and other intelligent devices, watch teaching micro-lessons, listen to demonstration audios and videos, and be familiar with the melody, lyrics and core knowledge points of the works; use interactive sheet music to be familiar with the sheet music sentence by sentence and conduct preliminary follow-up singing; use AI intonation/rhythm detection software to record their

preview singing recordings, detect their own intonation and rhythm problems, and make timely adjustments; at the same time, read the background information of the works, understand the creative background and artistic connotation of the works, and try to comprehend the emotional expression of the works. During the preview process, if students encounter difficult problems, they can ask teachers and classmates for help through the online interactive platform to ensure the smooth completion of preview tasks.

Finally, teachers timely check students' preview situation and accurately grasp the learning status. Through the learning management platform, teachers check the completion of students' preview tasks, preview singing recordings, interactive questions and other information, and conduct in-depth analysis of students' common learning difficulties and individual weak links. According to the results of learning status analysis, teachers adjust the offline classroom teaching content and teaching plan in a targeted manner, focus on explaining and solving students' common learning difficulties, and ensure that offline classroom teaching is more targeted and effective, laying a good foundation for subsequent offline practical training.

### *5.2 In-class: Offline Practical Training for Precise Guidance and Breaking Through Learning Difficulties*

Offline practical training in class is the core link of blended teaching, whose core goal is to solve students' learning difficulties, consolidate the results of pre-class online preview, and improve students' singing skills and emotional expression ability. In this link, teachers should make full use of digital resources, combine the advantages of offline face-to-face teaching, carry out precise guidance and interactive teaching, and effectively improve the effect of classroom teaching.

Teachers first sort out and summarize the common problems and learning difficulties reflected in students' pre-class preview, and carry out targeted key explanation and demonstration. For the individual problems of students, teachers carry out one-on-one precise guidance, and use digital recording and playback tools to record students' singing in real time, so that students can intuitively find their own problems and carry out targeted correction practice. Meanwhile, teachers organize various interactive teaching activities such as group discussion, peer evaluation and simulated performance in the classroom, and use digital display equipment to play excellent singing cases and students' singing recordings for comparative analysis, guiding students to learn from each other and improve together. In addition, teachers can use virtual stage and other digital resources to create a real stage performance atmosphere for students, let students carry out simulated stage performance, and guide students to combine singing skills with emotional expression, so as to improve students' stage performance ability.

### *5.3 Post-class: Online Consolidation for Expansion and Improvement and Formation of Sustained Feedback*

Post-class consolidation is an extended link of blended teaching, whose core goal is to consolidate the results of offline classroom practical training, expand students' artistic vision, improve students' singing skills and aesthetic accomplishment, and form a closed loop of "learning-practice-evaluation" in vocal

music teaching. In this link, teachers should push targeted digital resources according to students' learning situation in the classroom, guide students to carry out independent consolidation practice, and conduct timely online comments and feedback to form a sustained teaching feedback mechanism.

Teachers push targeted consolidation practice resources through the learning management platform according to students' classroom learning performance, including extended teaching videos, targeted practice exercises, high-quality singing works and other resources, guiding students to carry out independent consolidation practice for their own weak links. Students use AI practice tools and virtual accompaniment resources to carry out repeated targeted practice, record their practice recordings and submit them to the online platform. Teachers timely review students' practice recordings through the online platform, conduct professional comments and guidance, point out students' existing problems and put forward specific improvement suggestions. Meanwhile, teachers build an online communication and sharing platform for students, encourage students to share their practice experience and works on the platform, carry out peer evaluation and communication, and form a good learning atmosphere of mutual learning and common progress. In addition, teachers can push extended artistic resources such as music appreciation videos and musical work analysis articles to students, expanding students' artistic vision and improving their aesthetic accomplishment.

#### *5.4 Evaluation: Combination of Online and Offline for Diversified Assessment and Promoting All-round Development*

Evaluation is an important link of blended teaching, whose core goal is to comprehensively and objectively reflect students' learning effect, stimulate students' learning motivation, and promote their all-round development. In this link, it is necessary to construct a diversified evaluation system of "online + offline", "process + result" and "teacher evaluation + student self-evaluation + student peer evaluation", and make full use of digital resources to ensure the scientificity, objectivity and comprehensiveness of the evaluation.

In terms of evaluation content, the evaluation system includes both process evaluation and result evaluation. Process evaluation takes students' online learning data as the main basis, including online learning duration, preview completion quality, assignment submission situation, AI practice data, classroom participation and group cooperation performance, accounting for a certain proportion of the total evaluation results; result evaluation mainly includes students' offline classroom performance, stage performance and final singing assessment, which comprehensively reflects students' vocal music skill level and artistic expression ability. In terms of evaluation subjects, the evaluation system combines teacher evaluation, student self-evaluation and peer evaluation. Teachers conduct professional and objective evaluation of students' learning process and effect; students carry out self-evaluation according to their own learning situation and practice results, and reflect on their own learning problems; students conduct mutual evaluation on each other's singing works and practice performance, learning from each other's strengths and making up for their own weaknesses. In terms of evaluation methods, the evaluation system integrates online and offline evaluation methods. Online evaluation is completed through the

learning management platform, which automatically records and statistics students' online learning data and realizes the objective evaluation of the learning process; offline evaluation is completed through teachers' on-site evaluation and peer on-site evaluation, which comprehensively evaluates students' singing skills and stage performance ability. The diversified evaluation system comprehensively and objectively reflects students' entire learning process and actual effect, and effectively promotes the all-round development of students.

## **6. Existing Problems and Optimization Strategies**

Although the application of digital teaching resources in blended online and offline vocal music teaching has achieved good practical results and effectively improved the teaching quality and students' learning effect, there are still some prominent problems in the actual application process, which affect the full play of the value of digital resources and the optimized promotion of the blended teaching model. It is necessary to deeply analyze these problems and put forward targeted optimization strategies to solve them.

### *6.1 Existing Problems*

#### **6.1.1 Insufficient Digital Literacy of Teachers and Inadequate In-depth Application of Resources**

Influenced by traditional teaching concepts and teaching habits, some vocal music teachers have insufficient understanding of the connotation and application value of digital teaching resources, and lack the necessary digital teaching ability, making it difficult for them to skillfully use digital resources and online platforms to carry out blended teaching activities. Most teachers only take digital resources as a simple supplement to offline teaching, simply upload teaching videos and demonstration audios to the online platform without in-depth integration and optimization of resources, and fail to design targeted blended teaching plans combined with teaching objectives and students' actual learning needs. Some teachers are not proficient in the operation of digital resources such as AI tools and online teaching platforms, and cannot effectively use digital resources to carry out precise guidance and diversified evaluation for students, leading to the failure to give full play to the application value of digital resources.

#### **6.1.2 Uneven Quality of Digital Resources and Lack of Systematicness and Pertinence**

At present, although the number of digital teaching resources in the field of vocal music is constantly increasing, the overall quality is uneven. Some digital resources have problems such as outdated content, non-standard demonstration, unprofessional explanation and single form, which cannot meet the actual needs of vocal music teaching. At the same time, the existing digital vocal music teaching resources lack systematicness, and different types of resources such as teaching videos, demonstration audios and theoretical documents lack effective integration and connection, making it difficult to form a complete and systematic teaching resource system. In addition, most digital resources lack pertinence, failing to design personalized teaching resources according to the learning needs of students at different levels, different majors and different learning stages, resulting in poor application effect of resources and failure to realize the teaching goal of "teaching students in accordance with their aptitude".

### 6.1.3 Emphasis on Technology over Art and the Tendency of Technology Replacing Aesthetics

In the practice of blended vocal music teaching, some teachers over-rely on digital resources and technical tools, ignoring the artistic essence of vocal music teaching, and showing an obvious tendency of "emphasizing technology over art". These teachers focus too much on the improvement of students' technical skills such as intonation and rhythm with the help of digital tools, and neglect the cultivation of students' emotional expression, aesthetic perception and artistic expression ability, which makes students' singing only have technical skills but no artistic connotation. At the same time, some teachers replace face-to-face emotional communication and artistic guidance with online digital communication, which weakens the emotional interaction between teachers and students and the artistic inheritance in vocal music teaching, and deviates from the original goal of vocal music education.

### 6.1.4 Imperfect Teaching Evaluation System and Inadequate Implementation of Formative Assessment

Although most institutions have constructed a diversified evaluation system for blended vocal music teaching in theory, in the actual practice process, some teachers still take summative evaluation as the main evaluation method, ignoring the important role of formative assessment in the teaching process. The weight setting of formative assessment in the total evaluation results is unreasonable, the evaluation criteria are not clear and specific, and there is a lack of a complete and effective assessment implementation mechanism. Teachers fail to track and record students' learning process in real time and conduct comprehensive and objective formative assessment, resulting in the formalization of formative assessment, which cannot effectively reflect students' learning progress and process performance, and also cannot play the guiding and incentive role of evaluation in the teaching process.

## 6.2 Optimization Strategies

### 6.2.1 Strengthen the Training of Teachers' Digital Literacy and Improve Their Ability of Resource Integration and Application

To solve the problem of insufficient digital literacy of teachers, colleges and universities should take the initiative to assume the responsibility of teacher training, formulate a systematic and hierarchical digital literacy training plan for vocal music teachers, and carry out multi-form and multi-content training activities. Invite digital teaching experts, excellent online course designers and experienced vocal music teachers to carry out special lectures, practical operation training and typical case sharing activities for vocal music teachers, helping them update their teaching concepts, deepen their understanding of digital teaching resources, and master the types and scientific application methods of digital teaching resources. At the same time, train teachers to proficiently master the operation skills of online teaching platforms, AI vocal music practice tools and other digital resources, and improve their practical ability of using digital resources to carry out teaching activities. In addition, colleges and universities should encourage teachers to carry out digital teaching research and practice, set up special research projects on digital vocal music teaching, and guide teachers to participate in the development and integration of digital teaching resources, design targeted blended teaching plans combined with teaching objectives and students' learning needs, and continuously improve their ability of resource integration and application.

### 6.2.2 Build a School-based and Professional Digital Resource Library and Standardize Resource Construction Standards

To solve the problems of uneven quality, lack of systematicness and pertinence of digital resources, colleges and universities should unite professional vocal music teachers, industry experts and educational technology personnel to build a school-based and professional digital vocal music teaching resource library, and formulate unified and standardized resource construction standards to ensure the quality, systematicness and pertinence of digital resources. The resource library should cover a variety of types of digital resources such as multimedia teaching resources, tool-based practice resources, online platform resources and extended artistic resources, and form a complete and systematic resource system. Combined with the training objectives, teaching syllabuses and student characteristics of the vocal music major of the institution, the resource library screens and integrates high-quality vocal music teaching resources at home and abroad, and eliminates the resources with outdated content, non-standard demonstration and unprofessional explanation. At the same time, encourage teachers to develop personalized and targeted teaching resources such as exclusive micro-lessons, demonstration audios and teaching cases based on their own teaching experience and the actual learning needs of students, continuously enrich the content of the resource library, and ensure that the digital resources are highly consistent with the teaching content and students' learning needs. In addition, establish a dynamic update mechanism for the resource library, regularly update and optimize the digital resources according to the development of vocal music education and the update of teaching content, to ensure the timeliness and applicability of the resources.

### 6.2.3 Balance the Application of Technology and Art Training and Adhere to the Artistic Essence of Vocal Music Teaching

To address the tendency of "emphasizing technology over art", teachers should establish a clear teaching concept of "technology serving art", reasonably grasp the application scale and boundary of digital resources and technical tools, organically combine the application of technology with art training, and firmly adhere to the artistic essence of vocal music teaching. In the teaching process, on the one hand, teachers use digital resources and AI tools to help students solve technical problems such as intonation, rhythm and breath, and lay a solid technical foundation for students' singing; on the other hand, they pay more attention to the cultivation of students' emotional expression, aesthetic perception and artistic expression ability, guide students to deeply understand the artistic connotation of musical works, and integrate their own true emotions into the singing, so that the singing has both technical skills and artistic connotation. Teachers should give full play to the auxiliary role of technical tools, and at the same time attach great importance to the on-site demonstration, emotional communication and artistic guidance in offline teaching, strengthen the face-to-face emotional interaction between teachers and students, inherit the artistic essence of vocal music teaching, and avoid the phenomenon of technology replacing aesthetics and emotional communication. In addition, colleges and universities should strengthen the teaching supervision of blended vocal music teaching, standardize teachers' use of digital resources, and

ensure that the application of digital technology serves the improvement of students' artistic accomplishment.

#### 6.2.4 Improve the Diversified Evaluation System and Strengthen the Implementation of Formative Assessment

To solve the problems of imperfect teaching evaluation system and inadequate implementation of formative assessment, it is necessary to further optimize and improve the diversified evaluation system of blended vocal music teaching, clarify the evaluation criteria and weight setting, and establish a complete and effective assessment implementation mechanism to strengthen the implementation of formative assessment. First, reasonably adjust the evaluation weight, increase the proportion of formative assessment in the total evaluation results, and make formative assessment play a leading role in the teaching evaluation system. Second, formulate clear, specific and operable formative assessment criteria, clearly define the assessment content and scoring standards of each link such as online learning, pre-class preview, classroom participation and post-class practice, to ensure that formative assessment is carried out in accordance with rules and evidence. Third, make full use of digital teaching platforms to establish an automatic tracking and recording system for students' learning process, which can real-time record and statistics students' online learning data, practice results and other information, providing an objective and accurate data basis for formative assessment. Fourth, establish a regular feedback mechanism for evaluation results, teachers timely feed back the formative assessment results to students, point out students' learning progress and existing problems, and put forward specific improvement suggestions, guiding students to adjust their learning methods and strategies in a timely manner. Finally, strengthen the training of teachers' assessment ability, improve teachers' professional level of carrying out formative assessment, and ensure the scientificity and objectivity of the assessment process and results.

### 7. Conclusion and Prospect

Through a systematic and in-depth study on the application of digital teaching resources in blended online and offline vocal music teaching, combined with the definition of core concepts, analysis of theoretical support, discussion of application value, construction of application path, and in-depth dissection of existing problems and optimization strategies, this paper draws the following conclusions: As an important support for the digital transformation of vocal music education, the in-depth integration of digital teaching resources with the blended online and offline teaching model can effectively break the resource barriers of traditional vocal music teaching, enrich the teaching content and form, optimize the teaching process and link design, strengthen the targeted training of vocal music skills, improve the comprehensive and diversified teaching evaluation system, effectively stimulate students' learning interest and internal motivation, improve the teaching quality of vocal music and students' comprehensive artistic accomplishment, and provide an effective and feasible path for the reform of vocal music teaching and the innovation of talent training models in the new era.

In the future, with the continuous development and popularization of digital technology, artificial intelligence technology and virtual reality technology, the application of digital teaching resources in blended online and offline vocal music teaching will show a more diversified, intelligent and personalized development trend. Future research can further focus on the in-depth application of artificial intelligence technology in blended vocal music teaching, such as the research and development of AI intelligent error correction system, the construction of personalized learning plan intelligent push platform, and the application of virtual reality technology in vocal music stage performance training, to further improve the precision and personalization of vocal music teaching. At the same time, it is necessary to strengthen the intercollegiate and inter-regional cooperation in vocal music education, promote the co-construction, sharing and interconnection of high-quality digital vocal music teaching resources, break the regional barriers of resource sharing, and effectively promote the balanced development of vocal music education in different regions and different institutions. In addition, it is necessary to further explore the in-depth integration path of digital resources with all links of vocal music teaching, continuously optimize and improve the blended teaching model according to the actual needs of vocal music education and the development of digital technology, promote the in-depth digital and intelligent transformation of vocal music education, cultivate more high-quality professional vocal music talents with solid technical skills, high artistic accomplishment and strong innovative ability, and inject new vitality into the high-quality development of China's art education cause.

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