A Study on the Integration of Multimedia Teaching Methods in Second-year Vocal Music Classes at the College of Art Education, Xi'an Academy of Fine Arts, China

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Abstract

This study aimed to: (1) investigate the current situation and challenges of singing instruction at the College of Art Education at Xi'an Academy of Fine Arts in China; and (2) develop multimedia resources to support singing instruction for students at the same college. The sample consisted of 20 participants, including four vocal music teachers and 16 second-year music majors, selected through purposive sampling.

Research instruments included a literature review, semi-structured teacher interviews, multimedia resource development and implementation, and teacher-student questionnaires. Data were collected through document analysis, interviews, multimedia teaching experiments, and satisfaction surveys. Data analysis employed qualitative descriptive analysis, frequency analysis, and item- objective congruence (IOC) evaluation.

The findings were as follows:

1. Although the College of Art Education is equipped with professional teaching facilities and qualified instructors, many students exhibited weak foundational vocal skills. This was mainly due to limited pre-college training and a heavier emphasis on cultural coursework, which hindered their comprehension and application of vocal techniques.

2. A multimedia-based vocal teaching resource library was developed, featuring high-quality instructional videos and digital materials. When integrated with face-to-face instruction, this approach improved students' understanding of vocal techniques, increased their learning engagement, enhanced self-directed learning, and enabled teachers to monitor better and adapt to students' learning needs.

The results confirm that incorporating multimedia technology into traditional vocal music pedagogy can effectively enhance teaching efficiency and learning outcomes in art education institutions.

Keywords

Introduction

Since the restoration of the college entrance examination in 1977, China's art college entrance exams have shifted from elite-oriented to mass enrollment (Pan, 1999). Many candidates now qualify through short-term, exam-focused training, increasing competition but often weakening performance in cultural subjects, as students suspend cultural studies during pre-exam training. After the art exam, most candidates attend remedial classes to prepare for the general college entrance test. This test-oriented approach has resulted in issues such as inadequate skill mastery, insufficient foundational quality, and uncertain employment prospects. The art college entrance examination should serve as a means to select genuine artistic talent, rather than as a shortcut to university (Yin, 2013). Multimedia functions as both an interactive and educational tool, enhancing teaching without replacing the teacher. Well-designed multimedia programs integrate educational elements, stimulate active learning, and encourage students to learn through practical engagement rather than passive reading, thereby increasing both interest and effectiveness in the learning process (Gunawardhana & Palaniappan, 2016).

Fundamentally, the competition for the music college entrance examination has become increasingly fierce as the number of applicants has increased yearly. Although the level of cultural courses for music majors has improved recently, the level of specialized courses has declined. Before the college entrance examination, most students have undertaken limited specialized courses, often focusing on non-specialized classes such as music lessons and social practice. As a result, most of their technical learning and vocal singing understanding remained superficial, and students often encountered difficulties in understanding the terminology used in vocal studies. In this predicament, voice teachers must develop an intuitive and concise teaching methodology to quickly draw students to the focus of vocal learning and ensure they understand the fundamentals and pedagogical goals. Incorporating multimedia into modern teaching methods can play a key role in facilitating students' understanding of complex vocal techniques. Visual aids such as videos and animations can demonstrate these techniques more graphically, enhancing students' knowledge and retention of the content.

Objectives of the study

1. To investigate the current situation and challenges associated with singing instruction in the College of Art Education at Xi'an College of Fine Arts, China.

2. To develop multimedia resources to support singing instruction for students in the College of Art Education at Xi'an College of Fine Arts, China.

Methodology of the study

This study employed a qualitative research design with integrated quantitative elements to investigate the current situation and challenges in singing instruction and to develop multimedia resources to support vocal music pedagogy. The methodology consisted of the following key components:

1. Participants: The study involved 20 purposively selected participants from the College of Art Education at Xi'an Academy of Fine Arts, China. This group comprised four vocal music teachers with professional qualifications and teaching experience in higher music education. Sixteen second-year vocal music students enrolled in the College of Art Education. The purposive sampling method was chosen to ensure that participants possessed direct experience relevant to singing instruction, either as instructors or as learners.

2. Key Informants: Key informants for this study included the four vocal music teachers and sixteen students who actively participated in the instructional activities. The teachers provided professional insights through interviews, while students offered feedback based on their learning experiences.

3. Research Instruments: The following research instruments were developed based on relevant literature and pedagogical frameworks: Semi-structured teacher interview guide – to gather qualitative insights regarding the current situation, challenges, and pedagogical needs in singing instruction. Multimedia teaching resource package – developed by the researcher, consisting of high-quality instructional videos, interactive exercises, and supplementary digital learning materials. Classroom observation checklist – to monitor the integration of multimedia resources into instruction and to document teaching and learning behaviors. Teacher and student questionnaires – designed to assess satisfaction, engagement, and perceived improvement in learning outcomes after the multimedia resources were implemented. All instruments were validated for content accuracy and relevance by three experts in music education and educational technology using the Item–Objective Congruence (IOC) method.

4. Data Collection Procedures: Data collection was conducted in four sequential stages: Preliminary Investigation – Collection of background information through literature review and initial discussions with faculty members to identify key challenges in singing instruction. Interviews with Teachers – Semi-structured interviews were conducted with the four participating teachers to gain an in-depth understanding of current teaching practices, student skill levels, and existing resource limitations.

Implementation of Multimedia Resource Integration – The developed multimedia resource package was introduced into the classroom over a specific instructional period. Teachers incorporated these resources alongside traditional face-to-face instruction. Feedback Collection and Observation – Classroom observations, student surveys, and teacher questionnaires were administered to evaluate the effectiveness, usability, and engagement level of the multimedia-enhanced lessons.

5. Data Analysis: Data from the interviews and open-ended questionnaires were analyzed using qualitative descriptive analysis to identify recurring themes and patterns. Quantitative data from the surveys were analyzed using frequency analysis to determine the distribution of responses. The content validity of the research instruments was confirmed through IOC evaluation, ensuring alignment between research objectives and measurement items.

Results

Based on the research objectives and the methodological framework outlined earlier, the study systematically examined the current situation and challenges of singing instruction at the College of Art Education, Xi'an Academy of Fine Arts, and developed multimedia resources to address the identified issues. Data were obtained through institutional analysis, faculty and student interviews, classroom observations, and pilot implementation of multimedia-assisted teaching materials. The results presented in this section are organized according to the two main research objectives: (1) to investigate the existing conditions, strengths, and challenges in vocal music teaching, and (2) to develop and evaluate multimedia resources designed to enhance teaching effectiveness and student learning outcomes. The traditional vocal music teaching mode can enhance the effect of vocal music teaching.

Objective 1: Investigating the Current Situation and Challenges of Singing Instruction. The examination of singing instruction at the College of Art Education, Xi'an Academy of Fine Arts, revealed that the institution has substantial strengths in facilities, faculty qualifications, and academic programming, but also faces significant pedagogical challenges that limit instructional effectiveness and student skill development.

1. Institutional and Facility Strengths: The College of Art Education is located at the Lintong Campus and benefits from a well-developed physical infrastructure. Facilities include specialized music teaching buildings, over 20 professional studios, vocal classrooms, dance studios, concert halls, and exhibition spaces. Eight studios are dedicated exclusively to vocal instruction, equipped with professional-grade pianos and sound equipment. The teacher-student ratio for vocal majors (1:3)

allows for relatively high levels of individual attention. Faculty qualifications are strong, with 85% of full-time music teachers holding postgraduate degrees or higher and over 60% holding senior professional titles. Such resources position the College as a well-equipped institution capable of delivering advanced music education.

2. Academic and Artistic Enrichment Activities: The College actively organizes cultural and artistic exchanges, inviting national and international experts for masterclasses and seminars. The annual "Music Student Art Study" program is a unique initiative not found in other institutions, offering students the opportunity to experience different music genres, performance contexts, and industry trends. This initiative strengthens students' artistic sensibility, performance readiness, and understanding of the professional music landscape.

3. Teacher Professionalism and Instructional Practices: Despite the strong professional background of faculty members, interviews revealed that traditional instructional methods dominate vocal teaching. One-to-one lessons remain the primary model, with heavy reliance on teacher demonstration and student imitation. While effective for specific skills, this approach often lacks the flexibility to address varying student needs and limits opportunities for peer collaboration. Professors acknowledged the value of integrating modern educational technology to provide more diverse, interactive, and student-centered learning experiences.

4. Student Preparedness and Foundational Skill Level: Admission surveys indicate that most incoming music majors have less than one year of formal vocal training. This is mainly due to systemic factors, such as increased cultural course requirements for art candidates and uneven distribution of music education resources in secondary schools. While the College's facilities and teacher qualifications can support skill development, disparities in student ability levels present persistent challenges in group instruction.

5. Identified Pedagogical Challenges: Interviews with four senior professors (Zhang Tao, Peng Jun, Yang Yingdi, and Zhang Lanfang) consistently emphasized:

Lack of personalization: Current teaching often applies a standard curriculum regardless of individual vocal condition, range, or interpretive ability.

Low interactivity: Teacher-centered lessons limit student participation and active engagement.

Fragmented technology integration: Although some teachers use online resources, these are not systematically incorporated into a structured teaching model.

Over- reliance on imitation: Students often focus on reproducing teacher demonstrations without developing independent problem-solving or interpretive skills.

Limited theoretical integration: Courses focus heavily on performance practice while underemphasizing related areas such as music theory, history, and acoustics.

Objective 2: Developing Multimedia Resources for Vocal Music Teaching

In response to the identified gaps, the study developed and piloted a multimedia-assisted vocal teaching system to complement and modernize the traditional instruction model.

1. Creation of Multimedia Resource Library: A curated and organized resource library was created, containing High-definition instructional videos covering vocal techniques such as breath control, resonance placement, diction, and expressive phrasing. Digital handouts and visual aids explaining theoretical concepts with diagrams and audio examples. Interactive practice modules for self-paced study, allowing students to test and reinforce skills outside class hours. The materials were adapted from reputable online platforms and refined to match the College's curriculum, ensuring cultural and linguistic accessibility for the student body.

2. Integration into Classroom Instruction: The multimedia resources were systematically integrated into lessons during the pilot phase. Teachers used video demonstrations to supplement live instruction, digital slides to visualize concepts, and interactive exercises for immediate in-class application. This hybrid approach enabled students to repeatedly review techniques and concepts at their own pace, while still benefiting from direct teacher feedback.

3. Measurable Benefits Identified During Pilot: Student surveys and classroom observations revealed several key outcomes: Improved comprehension: Students demonstrated clearer understanding of technical concepts and were able to apply them more consistently in practice. Greater engagement: The combination of visual, auditory, and interactive content increased student motivation and focus. Enhanced self-directed learning: Access to materials outside class allowed students to prepare for lessons and practice independently, fostering ownership of the learning process. More responsive instruction: Teachers could monitor student progress more effectively, adjusting lessons according to individual strengths and weaknesses.

4. Addressing Conceptual Ambiguity in Technique: One of the most common problems noted by professors was students' "conceptual ambiguity" in understanding singing techniques. The multimedia resources addressed this by presenting high- quality demonstrations from multiple perspectives (visual diagrams, audio analysis, and slow-motion breakdowns), reinforcing both the "how" and the "why" of each skill.

In conclusion, the findings show that while the College of Art Education at Xi'an Academy of Fine Arts possesses robust infrastructure and highly qualified faculty, traditional vocal teaching practices require modernization to fully meet the needs of today's students. The development and integration of multimedia resources into vocal instruction significantly enhanced the clarity, accessibility, and engagement of lessons. This hybrid teaching model blending traditional pedagogy with modern technology provides a sustainable framework for improving both technical and artistic outcomes in higher music education.

Conclusion and discussion

The results of this study, aligned with its two objectives (1) to investigate the current situation and challenges of singing instruction in the College of Art Education at Xi'an Academy of Fine Arts, and (2) to develop multimedia resources to support singing instruction- confirm that integrating network-based multimedia with traditional face-to-face vocal teaching is both necessary and effective in the current educational context. The blended teaching model leverages the strengths of traditional instruction while incorporating the flexibility, accessibility, and engagement afforded by modern information technology (Xia, 2016). This integration addresses key weaknesses identified in the current system, such as limited personalization, low interactivity, and fragmented use of technology.

Concerning Objective 1, the study found that although the College possesses strong infrastructure, qualified faculty, and a rich curriculum, traditional one-to-one and teacher-centered approaches often fail to meet the needs of diverse learners fully. Similar findings have been reported by Liu (2022), who noted that conventional vocal instruction lacks the adaptability to accommodate varied learning paces and styles, especially in higher music education. Additionally, the limited use of educational technology results in missed opportunities for enhanced visualization, conceptual clarity, and student autonomy.

Regarding Objective 2, the development and pilot implementation of a multimedia vocal resource library, including high-quality instructional videos, interactive modules, and digital reference materials, was effective in enhancing both comprehension and practical application of vocal techniques. This aligns with Qin's (2025) research, which demonstrated that structured multimedia integration significantly improves teaching efficiency, learner motivation, and self-directed practice in vocal music education. In our study, multimedia resources allowed students to review material at their own pace, receive immediate feedback, and engage in repeated, varied practice

strategies consistent with Mayer's Multimedia Learning Theory, which emphasizes the cognitive benefits of presenting information through multiple channels.

The broader literature supports these conclusions. Studies in blended learning contexts (Beirnes et al., 2022) have shown that combining online multimedia with in-person instruction not only increases student engagement but also produces higher learning outcomes compared to single-mode approaches. In music education specifically, multimedia-assisted teaching has been shown to bridge the gap between abstract conceptual explanation and concrete skill acquisition (Xia, B. 2016; Liu, X. 2022).

In conclusion, integrating multimedia resources into traditional vocal music pedagogy offers a sustainable model for improving technical proficiency, interpretive skill, and student engagement. This approach not only aligns with global trends in education informatization but also promotes educational equity by providing consistent access to quality learning materials. Music education institutions should actively adopt blended learning strategies, train faculty in effective multimedia integration, and continuously evaluate their impact on student performance and satisfaction.

Suggestions

Significance of the Findings

1. Vocal instructors and curriculum designers can apply the findings to enhance teaching quality and raise professional standards.

2. Academic administrators and policy-makers can use the results as a guideline for developing future teaching models and updating curriculum structures.

Recommendations for Further Research

1. Other institutions offering music programs are encouraged to conduct comparative studies on teaching model reform and curriculum improvement.

2. The vocal music teaching template from this study can be adapted to create multimedia databases for other music courses as shared teaching resources.

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