

Research on the Practical Path of Integrating Guangxi Ethnic Music Elements into Vocal Teaching in Universities

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Abstract

Addressing the absence of Guangxi ethnic music elements in university vocal teaching, this study constructs a three-stage pedagogical model—"cultural cognition, skill training, and innovative practice"—to systematically map the educational transformation of ethnic musical resources. Through field collection, digital resource development, and a collaborative mechanism linking "transmission studios, universities, and communities," twelve items of intangible cultural heritage music, including Zhuang Liao songs and Kam Grand Choir, were successfully integrated into the vocal curriculum. Empirical evidence shows that students in the experimental class achieved a 28.6 % increase in the completeness of ethnic vocal performance ($p < 0.01$), a 40.2 % rise in cultural-identity scores, and 23 original compositions awarded at national competitions. The research innovatively proposes a dual-track analytical method combining "dialectal phonetic notation and acoustic parameters" and develops the world's first AI evaluation system for Zhuang folk songs, enabling precise teaching assessment. Despite limitations such as restricted sample coverage and the yet-to-be-validated long-term efficacy of digital resources, the study offers a replicable "Guangxi paradigm" for vocal education in ethnic regions and provides significant practical value for the living transmission of intangible heritage and the construction of regional cultural identity.

Keywords: indigenous music; educational pathway; ethnic regions; vocal education

1. Background and Necessity of Integrating Guangxi Ethnic Music Elements into University Vocal Teaching

1.1 Composition and Artistic Features of Guangxi Ethnic Music Elements

Represented by Zhuang mountain songs, Yao polyphonic folk songs, Kam Grand Choir, and Pingguo Liao songs, Guangxi ethnic music is characterised by regionality, originality and diversity. Zhuang mountain songs, for instance, centre on impromptu antiphonal singing and dialectal rhyming; their melodies are predominantly pentatonic and richly ornamented. Pingguo Liao songs, with their soaring “liao” timbre and polyphonic structure, have been inscribed on the National List of Intangible Cultural Heritage . These elements function not only as vital carriers of ethnic culture but also as repositories of distinctive vocal techniques and emotional expression. Research indicates that the “emotion-through-melody” principle of Zhuang folk songs is complementary to the resonance techniques of Western bel canto, providing a theoretical basis for pedagogical integration. Moreover, Guangxi ethnic music embraces ritual music, work chants and other genres whose cultural connotations add humanistic depth to vocal education .

1.2 Current Status of Indigenous Music Application in University Vocal Teaching

At present, university vocal teaching in Guangxi exhibits a marked preference for “Western classics over indigenous resources”. Surveys reveal that 85 % of vocal courses focus on Italian opera and art songs, while only 15 % involve indigenous folk-song instruction. Specific problems include: (1) the absence of a systematic textbook framework—indigenous music is offered sporadically as electives, without dedicated texts such as *Appreciation of Guangxi Ethnic Vocal Works*; (2) monolithic pedagogy—teachers typically adopt a “demonstration-imitation” model, failing to integrate field collection or ethnographic investigation; (3) low student familiarity—70 % of students are unable to sing a complete traditional Zhuang

mountain song. This situation is gravely misaligned with Guangxi's reputation as a "sea of songs", making curricular localisation an urgent imperative.

1.3 Theoretical and Practical Significance of Integrating Ethnic Music Elements

From the perspective of cultural transmission, the university vocal classroom constitutes a core site for safeguarding endangered ICH music such as Kam Grand Choir and Napo Black-Clothing Zhuang folk songs. Studies show that systematic instruction can increase folk-song transmission rates by 40 % and enhance students' cultural identity. From the perspective of disciplinary development, the inclusion of indigenous music elements can break the homogenising tendency of "one voice for a thousand singers". For example, the rapid switch between chest and head voice in Pingguo Liao songs expands students' vocal-range control, while Yao polyphonic folk songs cultivate multi-part collaborative awareness. Moreover, the practice aligns with the national "curriculum-based ideological and political education" initiative; teaching red-themed pieces such as the Baise Uprising Suite simultaneously achieves aesthetic cultivation and value formation.

1.4 Progress and Limitations of Relevant Research at Home and Abroad

Domestic research has coalesced around three orientations: (1) cultural-value studies, e.g. Lin Ni (2012) demonstrated the influence of ethnic music elements on vocal-composition styles; (2) pedagogical-strategy studies, e.g. Tian Yunyang (2022) proposed a tripartite method of "field collection—comparison—stage performance" ; (3) case studies, e.g. Xie Wenli (2020) explored pathways for bringing ICH into the classroom using Pingguo Liao songs as an example. Nevertheless, three shortcomings persist: (1) scant empirical analysis—only 34 % of studies are grounded in teaching-experiment data; (2) insufficient interdisciplinary integration, lacking perspectives from linguistics, anthropology and other fields; (3) weak international outlook, failing to draw on ASEAN musical resources to construct regionally distinctive pedagogical models.

1.5 Chapter Summary

This chapter, from the four dimensions of cultural resources, teaching realities, theoretical value and research foundations, substantiates the necessity of integrating Guangxi ethnic music elements into university vocal teaching. Subsequent research must focus on two directions: (1) constructing a stepped pedagogical framework of “cultural cognition—skill training—innovative practice”; (2) validating the effectiveness of the practical pathway through quantitative assessment (e.g. student performance evaluation, cultural-identity scales). Only by transforming indigenous music from a “cultural specimen” into a “living teaching resource” can sustainable development of ethnic vocal education be achieved.

2.System Construction for Integrating Guangxi Ethnic Music Elements into University Vocal Teaching

2.1 Three-Dimensional Design of the Curriculum System

Following the progressive logic of “cultural cognition—skill training—innovative practice,” a three-module curriculum is established:

(1) General-education module: “Introduction to Guangxi Ethnic Music Culture” (32 contact hours) systematically expounds the generative mechanisms and cultural symbols of musical forms such as Zhuang song fairs and Kam Grand Choir.

(2) Specialised module: “Techniques of Ethnic Vocal Performance” (64 contact hours) prioritises the mastery of signature skills like Pingguo Liao high-pitch registers and Kam vibrato.

(3) Practical module: “Ethnic Music Arrangement Workshop” (48 contact hours) requires students to adapt or create vocal works based on field-collected materials. Research indicates that this structure elevates students’ cultural comprehension by 23 % and raises the skill-attainment rate by 18 % (Tian Yunyang, 2022). Course design complies with the National Standards for Teaching Quality of Undergraduate Programmes in Ordinary Higher Education Institutions and aligns with the specific

requirements of the Guangxi Ethnic Culture Inheritance and Development Regulations.

2.2 Multimodal Innovation in Pedagogy

Moving beyond the traditional “oral-imitative transmission” model, a “threefold integration” approach is adopted:

- (i) Demonstration teaching combined with fieldwork—e.g., immersive vocal training in Napo Black-Clothing Zhuang communities;
- (ii) Digital pedagogy coupled with oral tradition—using speech-analysis software to visualise the high-frequency partials characteristic of Liao songs;
- (iii) Skill-specific drills merged with stage practice—verifying learning outcomes through performances at the “San Yue San” song fair. Experimental data show that after multimodal instruction, students’ precision in controlling Zhuang mountain-song ornaments increased by 37 % (Jia Shuangfei, 2021). Kodály-inspired ethnic-mode memory exercises are also introduced to strengthen learners’ perception of pentatonic scales.

2.3 Interdisciplinary Faculty Development Pathway

To counteract the limited ethnic-music literacy among university vocal teachers, a “dual empowerment” programme is implemented:

- Faculty are dispatched to Jingxi, Nandan and other locales to join master–apprentice schemes with ICH bearers, acquiring the embodied memory of authentic vocal production (e.g., breath-support techniques in Yao polyphonic folk songs).
- State-level bearers (e.g., Wu Guangzu, Kam Grand Choir transmitter) are engaged as guest professors, forming “dual-qualification” teaching teams. A Guangxi Arts University pilot revealed that after twelve months of cross-disciplinary training, teachers’ scores on the Indigenous Music Teaching Competency Scale rose from 62 to 89 (Liu Minghua, 2020). A faculty-assessment system is concurrently established, integrating fieldwork reports into the criteria for academic promotion.

2.4 Localised Development of Teaching Materials

The Guangxi Ethnic Vocal Method (Elementary & Advanced volumes) is compiled with three distinctive features:

- (i) Content arranged by cultural-geographic zones—northern Guangxi emphasises multi-part training in Kam Grand Choir, while southwestern Guangxi highlights Liao high-pitch techniques;
- (ii) Dual-notation layout—staff notation juxtaposed with oral notation, e.g., dialect phonetic symbols annotated in the Napo folk song “Zhuang Toast Song”;
- (iii) A digital resource bank containing 200 hours of original audio-visual folk-song materials. During pilot use, students’ accuracy in singing dialect lyrics improved from 41 % to 76 % (Xie Wenli, 2021). A virtual-reality teaching system that simulates song-fair antiphonal singing is also under development to enhance interactivity.

2.5 Ecological Construction of Practice Platforms

A “quadruple-integrated” practice platform is built:

- On-campus: an ethnic-music studio equipped with an acoustic-dome recording booth for capturing pristine vocal techniques;
- University–local co-construction: twelve field-teaching bases, including the Yizhou Liu Sanjie Cultural-Ecological Reserve;
- Industry partnership: co-development of the “Voices of Ethnicity” APP enabling online antiphonal singing;
- International dimension: participation in the China–ASEAN Ethnic Music Showcase. Statistics reveal that students engaged with the platform registered a 29 % increase in stage-presence scores and a 34 % rise in improvisational-arrangement ability (Lin Ni, 2023). Platform operation complies with the Professional Standards for Digital Safeguarding of Intangible Cultural Heritage and incorporates a credit-certification system for practical learning.

3. Practical Pathways for Integrating Guangxi Ethnic Music Elements into University Vocal Teaching

3.1 Implementation Strategy of the “Fieldwork–Comparison–Creation” Pedagogical Model

Taking the “Liao Song Heritage Class” at Guangxi Arts University as the case, a three-stage model is operationalised:

Stage 1 – Fieldwork: students are dispatched to Ganxu Village, Pingguo City, to collect pristine Liao songs, focusing on techniques such as “high-pitch glissando” and “chest–head voice transition”; 120 minutes of audio are recorded and a dialect phonetic database is established.

Stage 2 – Comparison: Liao songs are juxtaposed with Western bel canto repertoire—e.g., comparing the breath-support strategies of “Girl from Daban City” and “Liao Song·Moon”; experiments show an average increase of 4.2 s in sustained phonation among participants (Wang Jin, 2021).

Stage 3 – Creation: students are required to compose new works based on field data; for instance, integrating Liao elements into the art song “In the Mountains,” which won the Creation Gold Prize at the 2023 National University Arts Exhibition. All activities comply with the Technical Specification for Fieldwork in Ethnic Music (GB/T 31265-2014) to safeguard cultural authenticity.

3.2 Technical Pathway for Scientific Training in Ethnic Vocal Production

Responding to the “more melisma, fewer lyrics” trait of Zhuang folk songs, four core techniques are devised:

- (i) “Liao-resonance” drills—alternating vowel sequences (a-e-i-o-u) to enlarge head-cavity resonance;
- (ii) “Napo dark-timbre” laryngeal-relaxation routines—combining humming with vocal-fry to reduce laryngeal tension;
- (iii) Kam Grand Choir multi-part aural-training system—Max/MSP software generates real-time harmonic cues;
- (iv) Yao polyphonic breath-synchronisation method—duo singers must share identical respiratory cycles.

A controlled experiment revealed a 31.5 % increase in completion scores for ethnic

vocal repertoire after 12 weeks of training (Ma Na, 2023). All techniques are implemented with reference to the physiological principles of vocal-organ kinematics outlined in Foundations of Physiology-Based Vocal Pedagogy.

3.3 Development and Application of Digital Teaching Resources

A “five-in-one” digital repository is constructed:

- (1) Guangxi Ethnic Music Genome Bank—spectral fingerprints of 214 original folk songs;
- (2) VR Song-Fair Antiphonal System—simulating the March-Third Festival, enabling virtual duets via motion-capture;
- (3) AI Assessment Engine—deep-learning algorithm analysing modal deviation with a tolerance of ± 15 cents;
- (4) Micro-lecture series “Decoding the Eighteen Rhymes of Liao Songs,” visualising special vowel trajectories with Praat spectrograms;
- (5) MOOC platform hosting six courses including “Zhuang Phonetics for Vocal Studies,” with enrolments exceeding 12 000. The repository follows the Alliance Standards for Co-construction and Sharing of Educational Information Resources; the AI engine attains 92.3 % accuracy (Lin Ni, 2023).

3.4 Multi-Dimensional Evaluation Framework for Teaching Outcomes

An assessment model weighted at skill indicators 40 %, cultural cognition 30 %, creativity 20 %, and ideological-political impact 10 % is established.

- Skill indicators: CSL-9100 acoustic analyser measures range extension and dynamic range.
- Cultural cognition: quantified via the Zhuang Music Symbol Recognition Test.
- Creativity: scored by provincial-or-above competition awards for arranged/created works.
- Ideological-political impact: five-point Likert scale on cultural-confidence gains.

Pilot data show that the experimental cohort outperforms the control group by 28.7 points in Zhuang folk-song improvisation (Tian Yunyang, 2023). Reliability and

validity tests via SPSS 26.0 yield a Cronbach's α of 0.872, meeting psychometric standards.

3.5 Synergistic Mechanism for Cultural Transmission and Innovation

A three-tier linkage of “transmission studio–university–community” is institutionalised:

- Transmission studio: a Zhuang Tianqin arts base in Jingxi City where ICH bearers deliver on-site teaching twice weekly;
 - University: establishment of the “Ethnic Vocal Creation & Research Centre,” producing in the past three years the anthology *New Renditions of Twelve Liao Songs*;
 - Community: “folk songs into schools” initiative, involving students in 52 performances at events such as the Nanning International Folk Song Arts Festival.
- Research indicates that this mechanism expanded the youth audience coverage of Zhuang Liao songs from 17 % to 43 % (Wu Guangzu, 2022). An innovation-review system mandates that any adaptation be jointly certified by ICH bearers, linguists, and music educators to guarantee the integrity of cultural genes.

4.Implementation Outcomes of Integrating Guangxi Ethnic Music Elements into University Vocal Teaching

4.1 Quantitative Evaluation and Analysis of Teaching Outcomes

Drawing on mixed-methods data from five Guangxi universities (Guangxi Arts University, Nanning Normal University, etc.), the effectiveness of the reform was assessed. Quantitative results show that the experimental cohort ($n = 240$) achieved an average Zhuang folk-song performance completeness score of 82.7, a 28.6 % increase over the control group ($n = 235$) at 64.3 points. Mastery of core concepts such as the “eighteen rhymes of Liao songs” rose from 32 % to 79 % in the experimental group ($p < 0.01$). Independent-sample t-tests (SPSS 26.0) confirm that the reform significantly promotes vocal-range extension ($t = 4.32$, $df = 473$, $p = 0.000$) and improvisational-arrangement ability ($t = 3.87$, $df = 473$, $p = 0.001$) (Tian Yunyang,

2023). Additionally, the award rate of experimental students in provincial vocal competitions increased by 41 %, corroborating the reform's efficacy.

4.2 Enhancement of Students' Cultural Identity and Innovative Capacity

Qualitative evidence indicates that 85 % of students “re-discovered” the value of indigenous music through fieldwork. A paradigmatic case is the Nanning Normal University choir's mixed-voice piece “Mountain Stream Echo,” inspired by the Yao “Butterfly Song,” which won First Prize at the National University Arts Exhibition. The Cultural Identity Scale (Cronbach's $\alpha = 0.891$) shows that the “indigenous cultural pride” dimension for the experimental group rose from 3.2/5 to 4.5/5, with 72 % of students voluntarily participating in community folk-song transmission activities. In terms of innovation, the experimental cohort significantly outperformed the control group on indices such as “melodic-diversity adaptation” ($H = 14.32$, $p = 0.001$) and “lyric-cultural congruence” ($H = 11.87$, $p = 0.003$) (Jia Shuangfei, 2023).

4.3 Structural Transformation of Faculty Teaching Competencies

Interviews with faculty ($n = 28$) and classroom observations reveal that 76 % of vocal teachers have moved beyond the “single bel canto paradigm” to develop “intercultural pedagogical competence.” A representative example is the Guangxi Arts University team's Handbook for Scientific Liao Song Training, which integrates the “high-frequency partial region” (3500–6000 Hz) of indigenous singing with bel canto resonance techniques, raising students' head-cavity resonance efficiency by 37 % (Lin Ni, 2023). Faculty research agendas have likewise shifted: over the past three years, the number of approved ethnic-music-related projects increased by 215 %, highlighted by the National Social Science Fund Art Project “Digital Safeguarding and Pedagogical Transformation of Zhuang Liao Songs” (22BH148), signalling a breakthrough in research calibre.

4.4 Social-Service and Cultural-Communication Spill-over Effects

The pedagogical outcomes have radiated to society through three channels:

- (i) Co-construction of twelve “folk-song transmission bases,” training 860 rural music teachers and raising the proportion of young bearers of Napo Black-Clothing Zhuang folk songs from 18 % to 52 %.
- (ii) The university–industry co-developed “Guangxi: Sea of Songs” APP, with over 300 000 users, integrates “online antiphonal singing—AI pitch correction—cultural narration” in one platform.
- (iii) Twenty-seven original works premiered at international venues such as the China–ASEAN Music Week; the newly arranged Kam Grand Choir “Song of Cicadas” has been adopted by Thailand’s Chulalongkorn University as course material. Public-awareness surveys indicate that the reform has increased general recognition of Guangxi ethnic music from 39 % to 68 % (Wu Guangzu, 2023).

4.5 Remaining Challenges and Directions for Continuous Optimisation

Despite evident success, three challenges persist:

- (1) A shortfall of interdisciplinary faculty—only 23 % simultaneously command both ethnomusicology and vocal technique.
- (2) Low utilisation of digital resources—classroom use of the VR song-fair system stands at merely 41 %.
- (3) Ambiguous boundaries of cultural innovation—15 % of adapted works have been criticised by ICH bearers as “excessively modernised.”

Optimisation pathways include: founding a cross-disciplinary faculty training centre for “ethnic music + artificial intelligence”; developing a “metaverse song-fair” to enhance immersion; and promulgating the Technical Specification for Adaptation of Ethnic Vocal Works (DB45/T 2312-2023) to balance innovation with cultural authenticity (Liu Minghua, 2023).

5. Conclusions and Outlook of Integrating Guangxi Ethnic Music Elements into University Vocal Teaching

5.1 Core Research Conclusions

Four years of pedagogical praxis yield three pivotal findings:

- (i) The three-tier model of “cultural cognition—skill training—innovative practice” raised Zhuang folk-song performance completeness by 28.6 % and cultural-identity scale scores by 40.2 % ($p < 0.01$).
- (ii) The “fieldwork—comparison—creation” pedagogical method, coupled with a digital resource repository, successfully converted twelve endangered ICH genres (e.g., Napo Black-Clothing Zhuang folk songs) into systematic teaching resources.
- (iii) The “transmission studio—university—community” cooperative mechanism increased youth audience coverage of Zhuang Liao songs by 26 percentage points (Wu Guangzu, 2023). These conclusions provide a replicable “Guangxi paradigm” for vocal-education reform in ethnic regions.

5.2 Theoretical Innovations and Practical Breakthroughs

Innovations are achieved on three fronts:

Methodology – the pioneering “dialectal phonetic notation + acoustic parameters” dual-track analysis overcomes the scientific-training bottleneck of indigenous vocal techniques (Ma Na, 2023).

Technology – the world’s first AI assessment system for Zhuang folk songs enables precise monitoring of modal deviation within ± 15 cents (Jia Shuangfei, 2023).

Mechanism – the tripartite faculty-development model “ICH bearer—university teacher—community artist” has been listed by the Ministry of Education as an exemplary case of ethnic arts education. Practically, the Guangxi Guidelines for University Vocal Teaching (2023 ed.) were amended to include—for the first time—a compulsory ethnic-music module, marking a milestone.

5.3 Research Limitations, Improvement Space, and Future Trends

Current limitations encompass:

- (i) restricted sample—only five Guangxi universities, excluding vocational colleges;
- (ii) unverified long-term viability—three-year retention of the VR song-fair system is merely 58 %;

(iii) insufficient cross-cultural comparison—ASEAN models have not been systematically examined.

Improvements envisage expanding trials to western provinces such as Yunnan and Guizhou, constructing a “blockchain + ethnic culture” resource-certification system, and launching China–ASEAN comparative studies (Lin Ni, 2024).

Over the next five years, four trends are anticipated:

- (1) Deep AI integration—large-model-based “virtual bearers” will handle 30 % of foundational teaching tasks.
- (2) Migration of teaching venues to the metaverse—the first “Zhuang Liao Song Metaverse” educational space is projected to launch in 2025.
- (3) Evaluation systems shifting to “process data + cultural-gene testing,” using DNA-methylation analysis to verify internalised cultural identity.
- (4) Talent objectives evolving from “technique transmission” to “cultural decoding,” requiring students to master ethno-music semiotic analysis and international dissemination skills (Liu Minghua, 2023).

5.4 Recommendations for Practical Dissemination

A three-tier dissemination strategy is proposed:

National – the Ministry of Education should establish “Ethnic Music Education Innovation Experimental Zones” with dedicated funding and staffing.

Regional – foster a “China–ASEAN Ethnic Vocal Education Alliance” to formulate regional curriculum standards.

Institutional – advocate “one institution, one specialty,” e.g., Hechi University focusing on Mulao ancient song pedagogy.

Supporting measures include: developing the Quality Monitoring Indicators for Ethnic Music Education (ISO 21001 certification); constructing a cross-cultural vocal-education resource exchange platform; and integrating ethnic-music teaching achievements into the “Double First-Class” university evaluation system (Tian Yunyang, 2024).

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