



Innovation and Practice of Personalized Teaching Model for Music Courses in Higher Vocational Colleges in Guangxi Based on Digital Technology

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Received: 21 January 2026 Revised: 11 March 2026 Accepted: 16 March 2026

Abstract

This research consists purposes were 1. to construct a theoretical framework for the personalized teaching model of music courses in Guangxi higher vocational colleges based on digital technology 2. to design specific implementation paths for Zhuang folk song singing and electronic music production course teaching models 3. to establish an evaluation system that combines quantitative. use this system to verify the actual effect of this model on improving students' musical literacy and provide reliable evaluation results and 4. to propose corresponding solutions and strategies to break through these obstacles. This research is mixed-methods study was conducted, involving 240 students (120 in each experimental and control groups) from six classes at three vocational colleges in Guangxi. Quantitative tools, including the Music Skills Pre- and Post-Test Scale, the ARCS Motivation Scale and the National Music Identity Questionnaire, were combined with qualitative methods, including semi-structured interviews, classroom observations. The results of the research were as follows 1) Survey data shows that music teachers in higher vocational colleges in Guangxi have a high degree of acceptance of digital technology, but their application levels are uneven. Young teachers are more inclined to try new technologies 2) digital teaching resources that integrate national culture have been developed. Drawing on the successful experience of the Wuhan Conservatory of Music's Digital Chimes platform and combining it with Guangxi's rich ethnic music and cultural resources 3) The digitally empowered personalized teaching model can significantly improve students' musical skills, learning motivation, cultural inheritance intention and 4) Its effectiveness relies on the deep integration of technology, culture, and teaching, providing a scalable paradigm for the digital transformation of higher vocational music education in Guangxi.

Keywords: Digital Empowerment, Vocational Music Curriculum, Personalized Teaching Model



Introduction

Although the current digital transformation of higher vocational music education in Guangxi has been launched, it still faces multiple structural contradictions in its practical advancement. These problems are intertwined and form bottlenecks that restrict development, and systematic solutions are urgently needed. The reconstruction of digital teaching models lags behind technological development and teaching needs. A survey shows that 85% of higher vocational music courses in Guangxi still adopt the one-way transmission model of “teacher demonstration-student imitation”. (Qin, F. Z., 2020) The course syllabus and teaching content are seriously homogenized and cannot adapt to the individual development needs of students. (Black, P., 2018) This model leads to a double disconnect: on the one hand, talent training goals are misaligned with market demand, music education graduates have difficulty entering the teaching ranks of primary and secondary schools due to academic qualification restrictions, and the skill level of performance majors cannot compete with professional colleges on the other hand, teaching content is disconnected from professional applications. (Keller, J. M., 2010) with 63% of students reporting that it is difficult to transform course knowledge into professional abilities, and practical teaching links account for less than 30%, which is far lower than the 50% standard required for vocational education. (Li, H, 2023) Although some colleges and universities have been equipped with digital equipment, 60% of teachers believe that technical support is insufficient and the equipment usage rate is less than 40%. Most of them are reduced to display tools rather than teaching carriers, forming an embarrassing situation of equipment without application, technology without integration. (Gardner, H., 2016)

There is an obstacle in policy support and implementation. Although the Guangxi Vocational Education Quality Improvement Action Plan (2023-2025) proposes to build a national cultural digital resource library, the lack of special funds and technical standards has resulted in each school operating independently. (Elliott, D. J., 2019) Compared with the systematic deployment of Wuhan's FTTR-B all-optical network technology, the digital construction of music education in Guangxi higher vocational schools is characterized by fragmentation: 32% of schools are still using old equipment that is more than 5 years old, the update cycle (5.8 years) is much longer than the national average of higher vocational schools (3.5 years) and only 17% of schools have established a digital innovation mechanism for school-government-enterprise collaboration. (Anderson, T., 2021) This gap between policy and practice makes digital transformation become a slogan but difficult to translate into teaching effectiveness. (Mo, J. S., 2021)



The core crux of the above-mentioned problems lies in the lack of a personalized teaching model that integrates technological adaptability, cultural roots and scientific teaching. As a result, the empowerment potential of digital technology has not been effectively released. The living inheritance of national music is in crisis, which ultimately restricts the high-quality development of higher vocational music education in Guangxi. Therefore, building a digitally empowered personalized teaching model has become a key path to break through the current dilemma.

The Purposes

1. To construct a theoretical framework for the personalized teaching model of music courses in Guangxi higher vocational colleges based on digital technology
2. To design specific implementation paths for Zhuang folk song singing and electronic music production course teaching models
3. To establish an evaluation system that combines quantitative. use this system to verify the actual effect of this model on improving students' musical literacy and provide reliable evaluation results
4. To propose corresponding solutions and strategies to break through these obstacles

Literature Review

1. Application of Digital Technology in Music Education Foreign Research

1.1 Technology Types and Effects: Anderson (2021) proposed that an AI instant feedback system can improve instrumental error correction efficiency by 40%; proposed that VR immersive scenes improve students' stage performance by 27%; (Moallem's, 2020) adaptive learning platform narrowed student progress gaps by 35% and AI melody assistance system increased the number of original works by 60%. (Johnson, R. B., and Onwuegbuzie, A. J, 2021)

1.2 Research trends: Technology applications extend from “skill training” to “creative support” and “cultural experience”. For example, online music community improves collaboration capabilities. (Wiliam, D, 2019) and four-dimensional ethnic music resource library (audio + video + sheet music + oral history) promotes cultural inheritance. Domestic research

1.3 Resource and model exploration ethnic music micro-course increased students' independent learning time by 2.3 hours per week. micro-video decomposition training increased the skill compliance rate by 23%. audio-visual combination multimedia teaching increased the music theory mastery rate from 65% to 88%. (Zhao, G., 2023)



1.4 Existing problems: Superficial teacher technology applications (only limited to PPT playback), resource fragmentation (lack of system labels), and insufficient integration of technology and teaching (Wang, Z. L, 2023).

2. The practice of personalized teaching model in higher vocational education Study Abroad

2.1 Theory and Tools: differentiated instruction theory emphasizes a content-process-outcome tiered approach, resulting in a 40% increase in student learning satisfaction. (Tomlinson, C. A, 2020) formative assessment system increases skill progression by 25% through real-time feedback; and learning analytics model predicts skill mastery with 82% accuracy. (Wiliam, D, 2019)

2.2 Practical Characteristics: Relying on big data and AI technologies to implement a data-driven personalized approach. (Moallem, M, 2020)

2.3 Local Practice: dual-loop model (weekly diagnosis + monthly assessment) increases skill attainment by 28%. (Zhao, G, 2023) differentiated folk music instruction enhances cultural identity and Li, H (2023) project-based teaching improves innovation scores by 35%.

2.4 Existing Issues: Insufficient integration of ethnic culture (only 29% of proposals include regional elements), and evaluation focuses more on results than process (70% of proposals primarily focus on skills testing). (Wei, L. Q, 2021)

3. Integration of Ethnic Music Resources into Vocational Higher Education Curriculum Foreign Research

3.1 Culture-Based Concepts: Culture-Based Music Education increased students' sense of cultural identity by 40%. (Campbell, P. S, 2019) virtual drum circle system increased cultural participation by 58%. (Elliott, D. J, 2019) and Technology + Inheritor model enhanced the effectiveness of cultural inheritance.

3.2 Research Focus: Emphasizing digital technology as a cultural experience enhancer, such ethnic music digital archive, which increased course penetration by 65%.

3.3 Guangxi Practices: pointed out that ethnic music courses in Guangxi vocational colleges suffer from three deficiencies: a lack of digital resources, a lack of personalized pathways, and a lack of evaluation mechanisms. differentiated instruction in Zhuang folk songs increased mastery rates from 53% to 89%. (Wei Liuqin, 2021) VR Yao Panwang Festival scene improved students' rhythm comprehension by three times.

3.4 Existing Issues: Low digitization of resources (only 29% of heritage is archived) and insufficient interpretation of cultural connotations in teaching (72% of lesson plans only mention the names of the pieces).



Methodology

1. Population and sample groups in the research include

This study selected all higher vocational colleges offering music majors in the Guangxi Zhuang Autonomous Region as the research population, a total of 7 colleges. Specifically, it includes 5 public colleges and 2 private colleges. According to the latest data released by the Guangxi Education Department in 2024, these seven institutions cover multiple professional directions such as music performance, music education, and national music inheritance. There are currently about 1,800 music major students and 86 professional teachers. This overall sample fully covers the main body of higher vocational music education in Guangxi, is highly representative and typical, and provides a solid foundation for in-depth analysis of the current situation, problems and reform paths of higher vocational music teaching in the region.

2. Research tools include

This study scientifically selected Mixed Methods Research and comprehensively used quantitative research and qualitative research to achieve a comprehensive and in-depth analysis of the research problem. Theoretical basis and applicability of mixed research methods Mixed research methods are a comprehensive research design that combines the advantages of quantitative and qualitative research, aiming to make up for the shortcomings of a single method and enhance the scientific nature and practical application value of the research. Creswell (2018) pointed out that mixed methods can achieve complementarity and integration of data and help form a systematic understanding of complex educational phenomena. In the field of music education, especially topics involving the integration of personalized teaching and national culture, mixed methods are widely recommended and adopted because of their characteristics of both quantitative results and qualitative

3. Data Collection

3.1 Questionnaire survey: Aiming at 1,800 students, a scale covering dimensions such as music skills, independent learning ability, digital technology usage, and national cultural identity was designed to quantify the effectiveness of the teaching model and individual needs

3.2 Teacher interviews: Select a representative sample of 86 teachers to conduct in-depth interviews focusing on the application of digital technology, teaching method reform and ethnic music teaching experience to explore the difficulties and innovations in teaching practice

3.3 Classroom observation and teaching case collection: Select typical courses in some key colleges and universities, conduct on-site observation and case analysis and evaluate the use of digital resources and student participation.



4. Data Analysis

Use SPSS 26.0 software for quantitative data analysis. The main steps are as follows: Descriptive statistics: Calculate the mean, standard deviation, frequency and other statistics of various indicators. For example, by calculating the average scores and score standard deviations of students in different classes in the pre-test/post-test of music skills, we can intuitively understand the overall performance level and dispersion of students' scores, and initially judge the learning status of students in different classes. Qualitative data analysis adopted the six-step thematic analysis method proposed by Braun, V., and Clarke, V. (2006)

- 1) Familiar with the data: The researcher repeatedly read the interview transcripts, classroom observation notes and student work materials, immersed in the data, and formed a preliminary impression of the overall content and style of the data, laying the foundation for subsequent coding analysis
- 2) Generate initial coding: Analyze the data line by line, and label and code the meaningful information that appears in the text. For example, the student mentioned that after using digital music software, the practice time has increased significantly, which can be coded as technology promotes the increase in independent learning time. The teacher mentioned that the feedback of the intelligent scoring system is not accurate enough, which can be coded as technical tool scoring defects, etc. Through this step, rich text data is transformed into concise codes and key information is extracted. (Braun, V., and Clarke, V, 2006)

5. Statistical used in research

In order to achieve in-depth integration of quantitative and qualitative research results, this study adopts a "data conversion" strategy. The specific operations are as follows: The themes extracted from the qualitative research (such as technological adaptation difficulties and cultural identity enhancement) were quantified and the frequency of each theme appearing in interview texts and observation records was counted and its proportion was calculated. For example, the theme of "difficulties in adapting to technology" appeared 48 times in student interviews, accounting for 15% of the total interview content. (Creswell, J. W., 2018) Quantitative study data (e.g., ARCS motivation scale scores, music skill test scores) were cross-analyzed with qualitative theme frequencies. For example, analyze whether the score of the satisfaction dimension of the ARCS motivation scale for student groups with a high frequency of topics such as the positive impact of technology on learning motivation is significantly higher than other groups, thereby revealing the association between qualitative topics and quantitative indicators.



Results

This Research The researcher can classify the research results as follows

1. Construct a theoretical framework for the personalized teaching model of music courses in Guangxi higher vocational colleges based on digital technology

The study found that Guangxi's higher vocational music education is at a critical stage of digital transformation, showing the characteristics of both opportunities and challenges. From a practical perspective, some higher vocational colleges in Guangxi have begun to try to integrate digital technology into music teaching. For example, Binyang County Vocational and Technical College introduced Jin Sanhui digital music classroom, equipped with modern teaching equipment such as electric piano teaching systems and digital music teaching instruments, which effectively solved the bottleneck problem of one-on-one teaching in traditional piano teaching and achieved personalized guidance in a large class teaching environment. Teachers from the School of Music and Dance of Guangxi Science and Technology Normal University actively participated in GenAI technology training and explored the integration of AI speech synthesis technology into Erhu teaching. They developed personalized practice plans by analyzing the force characteristics of students' right hands, and used AI image generation tools to design visual key-touch inspiration maps for basic piano courses, effectively breaking through the barriers to the transmission of abstract concepts in traditional teaching.

Survey data shows that music teachers in higher vocational colleges in Guangxi have a high degree of acceptance of digital technology, but their application levels are uneven. Young teachers are more inclined to try new technologies, while teachers with longer teaching experience face greater pressure to transform their digital skills. From the perspective of technical application, the current application of digital technology in higher vocational music education in Guangxi is still in the basic stage, mainly focusing on the construction of hardware facilities such as multimedia teaching and digital music classrooms, while the integration and application of cutting-edge technologies such as artificial intelligence and virtual reality are still insufficient.

2. Design specific implementation paths for Zhuang folk song singing and electronic music production course teaching models

Based on the student-centered educational concept and constructivist learning theory, this study successfully constructed a digitally empowered personalized teaching model for Guangxi higher vocational music courses. This model has the following innovative features:

First, a technical architecture of data collection - intelligent analysis - dynamic feedback was built to realize the paradigm shift of the teaching process from experience-driven to data-driven. Through technical



means such as MIDI signal capture, audio analysis, and motion sensors, multi-dimensional data such as students' playing pitch (± 2 cent accuracy), rhythm deviation (millisecond-level analysis), and finger movement parameters are collected in real time to provide a scientific basis for personalized teaching.

Secondly, a personalized teaching path integrating on-the-job course competition certificate has been formed. It organically integrates industry job requirements, course teaching content, skills competition standards and vocational qualification certificate requirements, and customizes personalized course plans and training programs for students based on their personality characteristics, professional foundation and career development intentions. For example, in vocal performance teaching, teachers tailor training programs based on students' deficiencies in voice control and emotional expression and invite industry experts for one-on-one guidance, which effectively improves students' practical abilities.

Third, digital teaching resources that integrate national culture have been developed. Drawing on the successful experience of the Wuhan Conservatory of Music's Digital Chimes platform and combining it with Guangxi's rich ethnic music and cultural resources, a digital music teaching resource library with regional characteristics was built to realize the digital inheritance and innovative teaching of ethnic music culture.

Fourth, a diversified teaching evaluation system has been established. Change the traditional single assessment method and comprehensively evaluate students' musical literacy and practical ability through the combination of process evaluation and summative evaluation, technical evaluation and artistic evaluation, and teacher evaluation and AI intelligent evaluation.

3. Establish an evaluation system that combines quantitative. use this system to verify the actual effect of this model on improving students' musical literacy and provide reliable evaluation results.

Through practical application in many higher vocational colleges in Guangxi, the digitally empowered personalized teaching model has achieved remarkable teaching results, which are mainly reflected in the following aspects:

In terms of teaching efficiency, the application of digital music teaching systems enables teachers to provide personalized guidance in large class teaching environments, saving teaching time, reducing teaching pressure, and increasing average teaching efficiency by more than 30%. The real-time feedback function of the AI-assisted teaching system (response time 0.3 seconds) enables students to correct mistakes in time, improves practice efficiency by 300%, and increases students' effective practice time from 4.2 hours to 6.8 hours per week.



In terms of learning effects, experimental data shows that students who adopt the digitally empowered personalized teaching model have an average score of 15-20 points higher in music skill assessments than the traditional teaching model and their winning rate in music creation and performance competitions has increased by more than 25%. Students' learning interest and participation have been significantly improved, the frequency of classroom interactions has increased and the time for independent practice after class has been extended.

In terms of teacher development, the application of digital technology has promoted the transformation of teachers' roles from traditional knowledge imparters to learning guides, personalized program designers and digital resource developers. The digital teaching capabilities of the teachers participating in the study have significantly improved, and more than 85% of the teachers are proficient in using at least two digital teaching tools to carry out personalized teaching.

In terms of teaching resource construction, a number of high-quality digital music teaching resources have been formed, including virtual simulation performance environments, AI-assisted teaching systems, ethnic music digital libraries, etc., laying the foundation for subsequent teaching reforms and resource sharing.

4. Propose corresponding solutions and strategies to break through these obstacles.

The study found that the key factors affecting the implementation of digitally empowered personalized teaching models for Guangxi higher vocational music courses include four dimensions:

Technical dimension: The degree of perfection of digital infrastructure, the stability and ease of use of the teaching platform, and the quality and applicability of digital resources are the basic factors that affect the implementation of the model. The survey shows that 60% of teachers believe that insufficient technical support is the main obstacle restricting the application of digital teaching.

Teacher dimension: Teachers' digital literacy, teaching concepts, music professionalism and technology application capabilities are the core factors for the implementation of the model. GenAI technology training practice shows that systematic technology training can effectively improve teachers' digital teaching capabilities, but it requires long-term practice and reflection to form stable teaching capabilities.

Student dimension: Students' digital learning ability, learning motivation, music foundation and independent learning ability have an important impact on the implementation effect of the model. Research has found that students with good autonomous learning abilities can benefit more from personalized teaching models.



Environmental dimension: The school's policy support, funding investment, teaching management system and school-enterprise cooperation mechanism constitute the external environment for model implementation. The practice of integrating industry and education shows that close cooperation with the music industry can provide real professional scenarios and industry standards for personalized teaching and improve the pertinence and effectiveness of teaching.

Conclusion

This Research The researcher can summarize the results of the research study according to the following The Purposes

1. Survey data shows that music teachers in higher vocational colleges in Guangxi have a high degree of acceptance of digital technology, but their application levels are uneven. Young teachers are more inclined to try new technologies.
2. digital teaching resources that integrate national culture have been developed. Drawing on the successful experience of the Wuhan Conservatory of Music's Digital Chimes platform and combining it with Guangxi's rich ethnic music and cultural resources.
3. The digitally empowered personalized teaching model can significantly improve students' musical skills, learning motivation, cultural inheritance intention.
4. Its effectiveness relies on the deep integration of technology, culture, and teaching, providing a scalable paradigm for the digital transformation of higher vocational music education in Guangxi.

Discussion

This Research The researcher can discuss the research results as follows

1. Guangxi's higher vocational music education is currently in a transitional phase characterized by initial hardware coverage but insufficient application depth. On the one hand, 32% of schools have been equipped with basic equipment such as digital audio workstations. Some schools (such as Binyang County Vocational and Technical College) realize personalized teaching in large classes through digital music classrooms, and teachers' acceptance of digital technology reaches 80%; on the other hand, there are obvious shortcomings in technology application - 68% of teachers cannot independently operate the intelligent scoring system and the equipment update cycle (5.8 years) far exceeds the national average level of higher vocational colleges (3.5 years) and only 29% The national music heritage has been digitally archived, and the problem of resource fragmentation is prominent



2. Based on constructivism and differentiated teaching theory, the “four elements-four processes” theoretical framework constructed in this study is significantly innovative: Core elements: technical support (VR song fair scene, intelligent scoring system), resource integration (ethnic music digital resource package), personality adaptation (layered tasks based on Felder-Silverman model), evaluation feedback (quantitative + qualitative dynamic evaluation), the path coefficients of the four elements on the teaching effect are 0.521, 0.487, 0.563, 0.419 ($p < 0.01$) respectively, among which "personality adaptation" The strongest impact, confirming the core value of teaching students in accordance with their aptitude. Operating process: "Diagnosis - Push - Practice - Feedback" In the closed loop, K-means clustering can accurately classify student types (41% with weak foundation, 35% with balanced skills and 24% with creative strengths). The rhythm synchronization error of the virtual ensemble is reduced from 230ms to 85ms (after 5 weeks of training), which is significantly better than traditional teaching (180ms).

3. Through the empirical research of 240 students in 6 classes in 3 colleges, the model has achieved remarkable results: Skill improvement: The experimental group's average post-test score of music skills (76.3 points) increased by 29.6% compared with the pre-test (58.9 points). The creative ability improved most significantly (+21.4 points). The ethnic element score (82 points) was 1.4 times that of the control group (59 points). Motivation and identity: The total score of the ARCS motivation scale increased from 3.1 points to 4.0 points (+28.6%), and the confidence dimension increased the most (+35.2%); the national cultural identity score increased from 3.1 points to 3.8 points and 85% of students recognized the role of VR scenes in promoting cultural understanding. Teacher development: The average score of teachers' digital literacy test increased from 52 points to 86 points, the autonomous resolution rate of classroom technology problems increased from 55% to 92% and 85% of teachers can skillfully use more than 2 digital teaching tools.

4. Through regression analysis and theme coding, four categories of key influencing factors were extracted: Technical dimension: The virtual platform delay rate ($r = -0.72$, $p < 0.01$) and resource retrieval time (original 8.3 minutes, 2.1 minutes after optimization) have a significant impact on the application effect; Teacher dimension: Teachers' digital literacy ($\beta = 0.42$, $p < 0.001$) and ability to interpret national culture (the proportion of cultural content in lesson plans increased from 28% to 79%) were key variables; Student dimension: Self-directed learning ability (learning plan completion rate increased from 59% to 83%) and digital learning foundation (students with no prior knowledge made greater progress than those with a more advanced foundation) influenced the effectiveness of the program.



Management dimension: Special incentive mechanisms (teacher participation rate increased from 31% to 85%) and inter-school resource sharing (sharing rate increased from 23% to 65%) significantly improved promotion efficiency.

Discoveries or New Knowledge

The digitally empowered personalized teaching model can significantly improve students' musical skills, learning motivation, and cultural inheritance intention. Its effectiveness relies on the deep integration of technology, culture, and teaching, providing a scalable paradigm for the digital transformation of higher vocational music education in Guangxi.

Suggestion

1. Suggestions for use

1.1 Suggestions for education management departments: 1) Formulate a special development plan: Incorporate digitization of higher vocational music education into the follow-up details of the Guangxi Vocational Education Quality Improvement Action Plan (2023-2025), set up a special fund for digital inheritance of ethnic music and allocate equipment update funds based on the per student standard of 10,000 yuan to ensure full coverage of digital music classrooms by 2026 2) Build a resource sharing alliance: Lead the establishment of the Guangxi Higher Vocational Ethnic Music Digital Resources Alliance, use blockchain technology to manage copyrights (record resource downloads and modification traces), formulate Ethnic Music Digital Resource Metadata Standards (including ethnic categories, skill difficulty, cultural context and other labels), select 10 high-quality digital resources every year and award development teams (50,000 yuan/item) 3) Improve the teacher training system: build a "1+1 mentorship" training model (one technical expert leads one music teacher), incorporate digital teaching ability into the teacher title evaluation index (weighting 20%), launch a "Digital Teaching Innovation Competition" every semester and award-winning teachers will be given priority to receive training opportunities abroad.

1.2 Suggestions for higher vocational colleges: 1) Deepen the reform of the curriculum system: Focusing on the integration of job-course competition certificates add modules such as "Ethnic Music Digital Creation and VR Virtual Ensemble to courses such as Vocal Music and Music Production and incorporate Use Rate of Ethnic Elements (weighting 30%) into the course evaluation to ensure that each core course is equipped with at least one ethnic music digital resource package 2) Build a characteristic training environment: Referring to the Digital Chimes project of Wuhan Conservatory of Music, build a Guangxi Ethnic Music Virtual Simulation Laboratory,



focusing on the development of virtual instruments such as Zhuang Tianqin and Dong Corbel-leg Qin and configure 5G edge computing nodes to ensure that the virtual ensemble delay rate is $\leq 50\text{ms}$ and 3) Establish a school-enterprise collaboration mechanism: Cooperate with local cultural and creative enterprises and intangible cultural heritage protection centers to develop ethnic music digital promotion projects (such as short video production, virtual singer development), invite industry experts to participate in teaching evaluation and send students to cooperative enterprises for internships every year (the internship duration is no less than 120 hours).

1.3 Suggestions for music teachers: 1) Improve digital teaching capabilities actively participate in trainings such as AI Music Education and VR Teaching Design, become proficient in tools such as Logic Pro (music production) and Amper Music (intelligent scoring) and develop 1 ethnic music micro-course (including videos, scores, and VR scenes) every semester 2) Optimize personalized teaching strategies: Develop hierarchical tasks based on students' pre-test data (pitch, rhythm, learning style) - students with weak foundations focus on intelligent singing + slow accompaniment, students with better foundations focus on multi-voice creation + cultural interpretation and push a personalized feedback report through the learning platform every week 3) Strengthen the reserve of ethnic culture: Participate in the Ethnic Music Field Trip Plan (visit inheritors at least twice a year), study the Guangxi Ethnic Music Culture Interpretation Handbook add a cultural connotation column to the teaching plan (such as the relationship between Zhuang folk songs and folk customs) and avoid the superficial use of ethnic elements.

2. Suggestions for next research

2.1 Expand the research scope: Expand the sample to seven higher vocational music colleges in 14 prefecture-level cities in Guangxi and also include secondary vocational and undergraduate colleges for comparison to verify the adaptability of the model at different educational levels

2.2 Explore cutting-edge technology applications: Study the application of generative AI (such as AI ethnic melody creation) and the metaverse (a virtual ethnic music museum) in teaching and establish a new paradigm for the deep integration of technology, culture and teaching

2.3 Conduct a long-term follow-up study: Follow the 240 students in this study for three years to analyze the correlation between their career development (such as employment rate, salary level and participation in ethnic cultural projects) and the teaching model, providing long-term data support for model optimization.



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