

Vocal techniques and narrative expression in Sichuan Bamboo Qin: A case study of He Jufang

Sichuan Bamboo Qin'de vokal teknikler ve anlatısal ifade: He Jufang üzerine bir vaka çalışması

Siyou Luo¹, Suthasinee Theerapan¹, Weerayut Seekhunlio¹, Piyakon Suepbunma¹

¹ Mahasarakham University, College of Music, Maha Sarakham, Thailand.

ABSTRACT

This study examines the characteristics and structures of vocal techniques in Sichuan Bamboo Qin through a case study of the performance practice of He Jufang, an inheritor of the intangible cultural heritage within the Zhonghe Tune tradition. A qualitative case study approach was employed, integrating documentary research, semi-structured interviews, performance observation, and musicological analysis in conjunction with acoustic analysis to explore the relationships among musical structure, modal system, vocal techniques, and narrative function in three representative repertoires. The findings reveal that vocal techniques consist of several core components, including breath control, resonance application, the Shi San Qiang (Thirteen Tones) system, decorative techniques, and dialect-based diction, all of which play a crucial role in conveying emotional expression and musical meaning. These techniques are closely associated with musical structure, modal organization, pitch range, and rhythmic patterns, requiring performers to adapt vocal production in accordance with narrative context. Moreover, the interaction between voice and instrumental accompaniment reflects an integrated musical system characterized by rhythmic synchronization, melodic echo, and phrase filling, which enhances narrative continuity and expressive intensity. This study contributes to a systematic analytical understanding of vocal techniques in Sichuan Bamboo Qin and highlights the role of performers as both transmitters and interpreters of traditional practices within contemporary contexts, offering valuable insights for ethnomusicological research and the preservation of intangible cultural heritage.

Keywords: Sichuan Bamboo Qin, vocal techniques, Zhonghe Tune, ethnomusicology, intangible cultural heritage

ÖZ

Bu çalışma, Zhonghe Ezgisi geleneği içinde somut olmayan kültürel miras taşıyıcısı olan He Jufang'ın icra pratiğini bir vaka incelemesi olarak ele alarak, Sichuan Bamboo Qin'deki vokal tekniklerin özelliklerini ve yapısal düzenini incelemektedir. Nitel vaka çalışması yaklaşımı benimsenmiş; belgesel inceleme, yarı yapılandırılmış görüşmeler, performans gözlemi ve müzikolojik analiz, akustik analiz ile birlikte kullanılarak, seçilen üç temsili repertuar örneğinde müzikal yapı, modal sistem, vokal teknikler ve anlatısal işlev arasındaki ilişkiler araştırılmıştır. Bulgular, vokal tekniklerin nefes kontrolü, rezonans kullanımı, Shi San Qiang (On Üç Ton) sistemi, süsleme teknikleri ve lehçe temelli artikülasyon gibi temel bileşenlerden oluştuğunu ve bunların tümünün duygusal ifade ile müzikal anlamın aktarılmasında belirleyici bir rol oynadığını göstermektedir. Bu teknikler, müzikal yapı, modal örgütlenme, ses genişliği ve ritmik örüntülerle yakından ilişkilidir; bu nedenle icracılar, anlatısal bağlama uygun olarak ses üretimini uyarlamak zorundadır. Ayrıca ses ile çalgısal eşlik arasındaki etkileşim, ritmik eşzamanlılık, melodik yankılama ve cümle tamamlama ile karakterize edilen bütünleşik bir müzikal sistemi yansıtmakta; bu da anlatısal sürekliliği ve anlatım yoğunluğunu güçlendirmektedir. Bu çalışma, Sichuan Bamboo Qin'deki vokal tekniklerin sistematik ve analitik biçimde anlaşılmasına katkı sağlamakta; ayrıca icracıların çağdaş bağlamlarda geleneksel pratiklerin

Suthasinee Theerapan — suthasinee.t@msu.ac.th

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hem aktarıcısı hem de yorumlayıcısı olarak üstlendikleri rolü vurgulayarak etnomüzikolojik araştırmalar ve somut olmayan kültürel mirasın korunması açısından değerli açılımlar sunmaktadır.

Anahtar kelimeler: Sichuan Bamboo Qin, vokal teknikler, Zhonghe Ezgisi, etnomüzikoloji, somut olmayan kültürel miras

1. INTRODUCTION

Sichuan Bamboo Qin, which has been inscribed as a national intangible cultural heritage of China, represents a significant form of Quyi (Chinese narrative singing art) and serves as a cultural emblem of Sichuan Province. This performance tradition reflects the folk culture and artistic essence of the Sichuan Basin and the Three Gorges region. Distinct from other Quyi forms, Sichuan Bamboo Qin places primary emphasis on vocal performance, accompanied by bamboo clappers (jianban) and bamboo drums (zhutong). Numerous folk traditions in Sichuan have been recognized as part of China's intangible cultural heritage, reflecting the historical development and cultural systems of the Yangtze River region and the ancient cultural routes of western China (Y. Liu et al., 2022).

However, within the context of modernization and increasing cultural diversification, Sichuan Bamboo Qin faces several challenges, including a declining number of practitioners, shrinking audiences, and the gradual erosion of traditional vocal techniques. Such issues are widely observed across Chinese folk performing arts in response to transformations in media and modes of communication in contemporary society (Shi, 2025). In this context, He Jufang, as a recognized inheritor of intangible cultural heritage at the municipal level, has played a crucial role in preserving and developing Sichuan Bamboo Qin for over a decade. Trained in the traditional vocal techniques of the Zhonghe Tune, the most influential school within this genre, she has developed a distinctive performance style that integrates tradition with contemporary aesthetics. This approach reflects the dynamic process of transmission and adaptation within the framework of intangible cultural heritage, emphasizing the preservation of artistic essence alongside contextual transformation (Shang, 2025). Therefore, her performance practice provides an appropriate and valuable case for investigation.

Existing studies on Sichuan Bamboo Qin have primarily focused on historical development, cultural context, and transmission processes. In contrast, systematic and in-depth analyses of vocal techniques remain relatively limited, particularly regarding the acoustic characteristics and vocal mechanisms underlying Chinese folk singing. While some recent studies have begun to employ acoustic analysis to examine vocal features in Chinese folk music (Wang & Zhao, 2024), and others have explored vocal styles from broader musicological and cultural perspectives (Xia, 2022), detailed analytical studies of specific repertoires and individual inheritors such as He Jufang are still scarce.

This study aims to investigate the characteristics and structures of vocal techniques in Sichuan Bamboo Qin through a case study of He Jufang's performance practice as a key inheritor of the Zhonghe Tune tradition. A qualitative case study approach is adopted, integrating documentary research, semi-structured interviews, performance observation, musicological analysis, and acoustic analysis to examine the relationships among musical structure, modal system, vocal techniques, and the interaction between voice and instrumental accompaniment. The study seeks to address existing gaps in the literature by providing a systematic analysis of vocal techniques and by elucidating the distinctive features of Zhonghe-style singing through contemporary performance practice. The research is guided by the following questions:

1. What are the key vocal techniques in Sichuan Bamboo Qin as demonstrated in the performances of He Jufang?
2. How are these vocal techniques related to musical structure, modal organization, and the narrative functions of the selected repertoires?
3. How does He Jufang's interpretation and application of vocal techniques reflect both the transmission of the Zhonghe tradition and its adaptation within contemporary performance contexts?

2. METHODOLOGY

2.1. Research Design and Theoretical Framework

This study adopted a qualitative case study approach to investigate the characteristics and vocal techniques of Sichuan Bamboo Qin through the performance practice of He Jufang, a recognized inheritor of intangible cultural heritage in Chongqing representing the Zhonghe Tune tradition. The analysis was grounded in two principal theoretical frameworks: Vocal Expression Theory, which explains the role of breath control, resonance, and vocal vibration in emotional expression (Miller, 1996; Sundberg & Rossing, 1987), and the Intangible Cultural Heritage (ICH) framework, which emphasizes transmission, interpretation, and adaptation of folk arts in contemporary contexts (Smith, 2006; UNESCO, 2003). Data were collected through documentary research, semi-structured interviews, performance observation, and integrated musicological and acoustic analyses to achieve data triangulation and enhance the reliability of the findings.

2.2. Documentary Research

Documentary research was conducted to establish an understanding of the historical, cultural, and musical contexts of Sichuan Bamboo Qin, including the role of the Zhonghe Tune within its vocal system. Sources included academic books, journal articles, heritage reports, historical documents, and institutional records. These materials provided a foundation for analyzing musical structure, modal systems, and transmission contexts, and supported the interpretation of vocal techniques. This approach aligns with qualitative document analysis methods (Bowen, 2009).

2.3. Semi-Structured Interviews

Semi-structured interviews were conducted to explore He Jufang's vocal experience, technical perspectives, and views on cultural transmission. The in-depth interview took place in December 2025, lasting approximately 90 minutes, with prior consent obtained. Key topics included training background, vocal techniques, repertoire-specific applications, and adaptation within contemporary contexts. The interview was audio-recorded and transcribed for analysis alongside observational and musical data. This method allowed for flexible and in-depth exploration of experiential knowledge (Kvale & Brinkmann, 2009).

2.4. Performance Observation

Field observations were carried out in December 2025 through direct attendance at live performances by He Jufang in national, provincial, and municipal cultural heritage events. Observations focused on vocal elements such as breath control, resonance, articulation, decorative techniques, emotional expression, and interaction with accompanying musicians. This approach follows participant observation principles in qualitative research (Spradley, 1980). Video recordings were also collected to enable repeated viewing and detailed analysis of vocal techniques and performance practices.

2.5. Data Analysis

Qualitative data from documents, interviews, and observations were categorized and analyzed using thematic analysis to identify key patterns in vocal techniques and interpretive practices (Braun & Clarke, 2006). The selection of the three representative pieces was based on purposive sampling, focusing on repertoires that are widely recognized as signature works of He Jufang within the Zhonghe Tune tradition. The selected pieces *The Old Lady of Shuangqiang*, *Chun You Tao Li Zhi Zhi Mao*, and *Hua Zi Liang* were chosen due to their prominence in performance practice and their representativeness of the stylistic and expressive characteristics of Sichuan Bamboo Qin. This selection ensures consistency between the repertoires and the performer under investigation. Musical data were then examined through musicological analysis, focusing on structure, modal systems, melodic contour, pitch range, and rhythmic patterns (Bent, 1987). In parallel, acoustic analysis was conducted using Praat to examine pitch, vibrato, resonance, and sound intensity. The integration of these approaches enabled a comprehensive understanding of the relationships among musical structure, vocal techniques, and emotional expression. Findings are presented through tables and visual representations, including melodic line graphs and acoustic charts.

2.6. Ethical Considerations

This study was approved by the Institutional Human Research Ethics Committee (Approval No. 746-666/2025). All participants were informed of the research objectives, procedures, and scope prior to data collection and provided voluntary consent. Participants were informed of their right to withdraw at any time without consequence. All data were used solely for academic purposes and handled confidentially in accordance with ethical research standards, with careful consideration given to cultural sensitivity and the safeguarding of intangible cultural heritage.

CONTEXT IN BRIEF

Sichuan Bamboo Qin, also known as “Bamboo Clapper Opera,” is a traditional folk performance widely practiced in Sichuan Province, Chongqing Municipality, and surrounding regions. It belongs to the category of Quyi, a Chinese narrative singing art that integrates speech and singing to convey storyline and emotion (Cuiyan, 2021). Originating in the late Ming to early Qing dynasty, this art form has a history of over 300 years. Performances are typically delivered by one or two performers who sing while accompanying themselves with bamboo clappers (*jianban*) and bamboo drums (*zhugu*). Characterized by simplicity, elegance, and a strong emphasis on vocal expression, Sichuan Bamboo Qin aligns with the core aesthetic of Quyi, where vocal narration serves as the central expressive medium (Shi, 2025). In this context, the singing voice also reflects social identity and cultural roles, functioning as a medium for both emotional communication and cultural representation (Lawson, 2017).

Among its various stylistic lineages, the Zhonghe Tune also known as the Eastern Sichuan School is regarded as the most influential and structurally developed tradition (Wen, 2026). Originating from Wanzhou in Chongqing, this style is distinguished by its use of the pentatonic system, particularly the Shang, Yu, and Gong modes, which contribute to its lyrical and expressive melodic quality. Its musical structure is notably flexible, combining *banqiang* and *qupai* systems to support diverse narrative and emotional expressions. According to the Chongqing Three Gorges Quyi Protection and Inheritance Center (2024), the Zhonghe Tune currently has more than 50 inheritors and over 200 traditional repertoires. However, like many forms of intangible cultural heritage, it faces challenges in contemporary society, including a decline in practitioners and audiences, as well as issues related to adaptation in the digital era (Hou et al., 2022).

Within this context, He Jufang has emerged as a significant inheritor of the Zhonghe Tune tradition. She is officially recognized as a municipal-level inheritor of intangible cultural heritage in Chongqing and a nationally ranked first-class performer. With a background in Sichuan opera training and extensive performance experience, she demonstrates mastery in both traditional repertoires and vocal techniques of the Zhonghe style. Her singing is characterized by clear articulation, a smooth vocal tone, and flexible breath control key elements in Chinese folk vocal practice (Xia, 2022). Furthermore, her use of resonance and expressive delivery reflects the close relationship between vocal technique and cultural context. While grounded in traditional practice, her performances incorporate contemporary aesthetics and local cultural elements, enabling effective communication with modern audiences. In addition, her roles in performance, teaching, and digital dissemination have contributed to the continued transmission and visibility of Sichuan Bamboo Qin.

Overall, the distinctiveness of the Zhonghe Tune lies not only in its melodic and instrumental features but in the integrated relationship among voice, text, rhythm, and emotional expression within narrative singing. This perspective aligns with vocal expression theory, which emphasizes vocal technique as a key mechanism for conveying musical meaning and emotion (Sundberg & Rossing, 1987), as well as with contemporary research highlighting the role of acoustic features in emotional communication (Scherer et al., 2017). In this sense, vocal technique constitutes the core of artistic identity and serves as a vital means of sustaining the relevance of folk music in contemporary contexts. The case of He Jufang demonstrates that inheritors function not only as preservers of tradition but also as active interpreters who adapt artistic practices to evolving social and aesthetic conditions. This reflects the concept of intangible cultural heritage as “living heritage,” characterized by continuous transmission and transformation (UNESCO, 2003). Therefore, examining her vocal practice provides valuable insights into both the technical characteristics of the Zhonghe Tune and the dynamic processes of cultural sustainability in modern contexts.

STRUCTURAL AND MODAL CHARACTERISTICS

The structural and melodic organization of Sichuan Bamboo Qin is closely linked to narrative progression and emotional expression, with musical design aligning with the development of the storyline, reflecting the role of music as a narrative structure (Alberhasky & Durkee, 2024). In He Jufang's performances, the flexible use of banqiang and qupai systems allows adjustments in tempo, phrase length, and melodic patterns according to textual content. Performances typically begin with a slower tempo to establish narrative context, followed by increased intensity through changes in tempo and melodic density to enhance emotional impact (Zhang, 2024).

In terms of melody, the three selected pieces demonstrate the role of melodic contour in emotional communication (Lindström, 2006). *The Old Lady of Shuangqiang* features a compact and dramatic melodic style, combining stepwise motion and intervallic leaps, particularly evident in the opening phrase (see Figure 1). In contrast, *Chun You Tao Li Zhi Zhi Mao* presents a smooth and flowing melody dominated by stepwise motion, while *Hua Zi Liang* integrates structural stability with expressive expansion through a wider pitch range and occasional ascents to higher registers. These features enable melody to function as a key medium for narrative and emotional expression, as illustrated in the contour structure shown in Figure 1 and further supported by acoustic evidence in Figure 2.

Figure 1

Melodic contour and expressive tension in Phrase 1 of The Old Lady of Shuangqiang

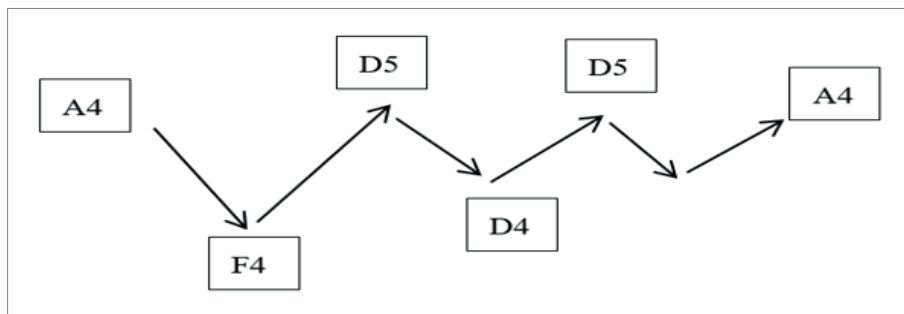
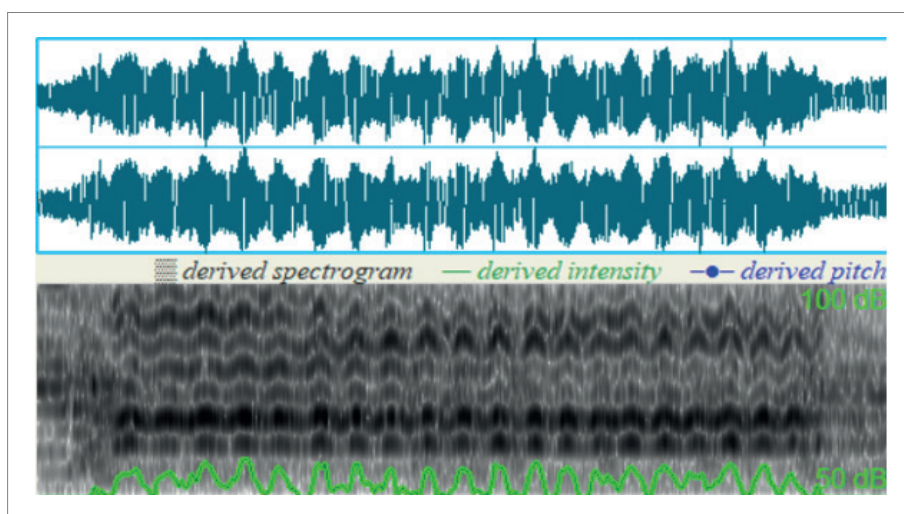


Figure 2

Acoustic analysis of Phrase 1 in The Old Lady of Shuangqiang, showing waveform (top) and spectrogram with pitch (F0) and intensity contours (bottom)



As shown in Figure 2, the acoustic profile of Phrase 1 reveals a close relationship between pitch movement (F0) and intensity variation. The pitch contour exhibits oscillatory motion corresponding to melodic shaping, while the intensity curve demonstrates dynamic fluctuations that align with moments of expressive emphasis. In particular, segments with increased intensity coincide with points of heightened melodic activity, suggesting that vocal energy is strategically employed to reinforce narrative tension and emotional expression. The

spectrogram further illustrates stable harmonic structures with localized variations in spectral density, reflecting controlled vocal production within the Zhonghe Tune style.

Regarding pitch range, Sichuan Bamboo Qin generally operates within a mid-range tessitura to support narrative clarity. *The Old Lady of Shuangqiang* spans D4–D5 (approximately one octave), *Chun You Tao Li Zhi Zhi Mao* ranges from G $\sharp$ 3 to C $\sharp$ 5, and *Hua Zi Liang* extends from G3 to E5, reaching approximately a major 13th (see Figure 3). Such variation allows performers to manipulate tone color in order to portray different characters and emotional states, consistent with studies emphasizing the role of pitch, frequency, and timbre in vocal expression (Scherer et al., 2017).

Figure 3

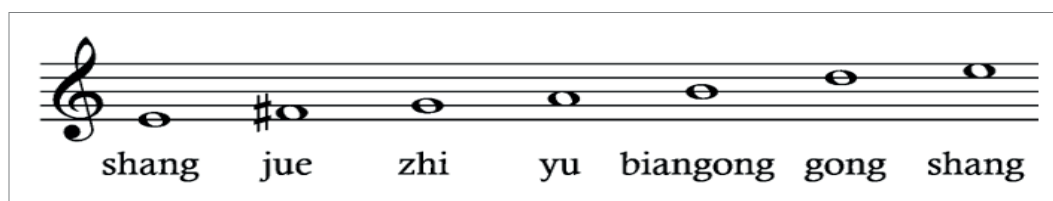
Pitch range and expressive function in Hua Zi Liang



In terms of modality, Sichuan Bamboo Qin is grounded in the pentatonic system of Chinese folk music, primarily employing Gong, Shang, and Zhi modes, which define tonal centers and melodic structures (Nan & Guan, 2023). This system reflects the characteristics of anhemitonic pentatonic organization, emphasizing tonal balance and structural relationships (H. Liu et al., 2022). Modal selection plays both structural and expressive roles within Quyi. Analysis shows that *The Old Lady of Shuangqiang* employs the E Shang mode (see Figure 4), producing a strong and heroic melodic character, whereas *Hua Zi Liang* utilizes the G Zhi (Qingyue) mode, resulting in a more open, flexible, and emotionally nuanced melodic quality.

Figure 4

Pitch structure and modal organization of E Shang mode in The Old Lady of Shuangqiang



In terms of rhythm, Sichuan Bamboo Qin employs diverse patterns within the banqiang system, including yi zi ban, er liu ban, and san ban, representing beat-based variation shaped by vocal context (Thrasher, 2016). This system supports flexibility in tempo and expressive delivery (Fu et al., 2024). For example, *Hua Zi Liang* begins with yi zi ban in a 4/4 time signature at a relatively slow tempo to establish the narrative, before transitioning around measure 8 to er liu ban in a 2/4 time signature with increased tempo, reflecting heightened dramatic intensity. In addition, san ban appears as a free-rhythm section to emphasize key emotional moments (see Figure 5).

Figure 5

Banqiang rhythmic transition in Hua Zi Liang



Overall, the analysis of musical structure, melodic organization, pitch range, and rhythm demonstrates that these elements function not merely as formal frameworks but as core mechanisms shaping vocal technique and emotional expression. This aligns with vocal expression theory, which highlights the importance of breath control and vocal quality in conveying musical meaning (Miller, 1996; Sundberg & Rossing, 1987). Furthermore, contemporary studies indicate that acoustic features such as pitch and intensity directly influence emotional perception (Scherer et al., 2017), and can be observed through parameters such as vibrato and vocal energy in performance contexts (Sundberg et al., 2021). Consequently, singers must adapt their techniques in accordance with melodic structure, modal systems, and rhythmic design. The integration of musicological, acoustic, and qualitative analyses enhances the reliability of the findings and enables a systematic explanation of the relationship between musical structure and vocal technique.

VOCAL TECHNIQUE ANALYSIS

Vocal performance in Sichuan Bamboo Qin integrates traditional melodic systems with specialized vocal techniques, particularly within the Zhonghe Tune, which emphasizes breath control and resonance in shaping vocal quality (Aura et al., 2022). This is complemented by the Shi San Qiang (Thirteen Tones) system, decorative techniques, and dialect-based articulation. These elements play a crucial role in emotional expression and narrative delivery. The findings indicate that He Jufang applies these techniques flexibly in accordance with melodic structure and emotional context. Accordingly, the analysis is organized into five aspects: breathing control, resonance application, the Shi San Qiang system, decorative techniques, and articulation.

Breathing Control

Breathing control constitutes a fundamental component of vocal performance in Sichuan Bamboo Qin, as it directly affects melodic continuity, textual clarity, and emotional expression. Singers typically employ a combined abdominal–thoracic breathing technique to ensure stable vocal support and flexible airflow control, consistent with the view that breathing patterns are closely related to phonation control and vocal quality (Salomoni et al., 2016). In He Jufang's performances, breathing techniques are adapted to the specific characteristics of each repertoire, including emotional intensity, melodic continuity, and narrative context, demonstrating flexibility in the application of foundational vocal techniques in relation to musical and performative demands. In this sense, breathing control may be understood not only as a physiological mechanism but also as an expressive resource that shapes phrasing, timing, and emphasis, thereby influencing how musical meaning is perceived and interpreted, aligning with Meyer's (1956) theory of musical expectation and expression. From a semiotic perspective, such variations in breath management may function as expressive cues that mediate between sound and meaning (Nattiez, 1990), reinforcing the role of vocal technique as a key component in the construction of narrative and emotional communication in performance.

Resonance Application

Resonance application is a key factor in determining vocal quality and expressive power in Sichuan Bamboo Qin. Performers typically combine chest and oral resonance to produce a tone that is both strong and resonant while maintaining clarity of articulation. This aligns with vocal physiology theories that describe resonance as shaping vocal quality through the interaction of the vocal tract and sound amplification (Sundberg & Rossing, 1987). In addition, adjustments in vocal tract configuration directly influence resonance control and acoustic properties of the voice (Herbst & Story, 2022), while acoustic theory suggests that variations in vocal tract shape affect formant frequencies and listeners' perception of timbre (Titze, 2000). In *The Old Lady of Shuangqiang*, He Jufang employs a combination of chest and oral resonance to create a powerful and forceful tone consistent with its dramatic content. In contrast, *Chun You Tao Li Zhi Zhi Mao* emphasizes oral resonance to achieve a brighter and more fluid tone, while *Hua Zi Liang* utilizes chest resonance in sections that convey intense emotional states. These variations demonstrate the performer's ability to adjust vocal quality in accordance with musical and expressive contexts, suggesting that resonance functions not only as a physiological mechanism but also as an expressive resource that shapes emotional perception and narrative meaning, aligning with Meyer's (1956) theory of musical expression and expectation as well as Blacking's (1973) concept of music as humanly organized sound.

Shi San Qiang (Thirteen Tones)

The Shi San Qiang (Thirteen Tones) system constitutes a central structural framework in Sichuan Bamboo Qin, shaping melodic characteristics, emotional expression, and narrative delivery. Each qiang embodies distinct features in terms of rhythmic patterning, melodic movement, and expressive color, corresponding to the concept of melodic-type systems in Chinese music, where structured vocal patterns mediate between musical form and emotional expression (Thrasher, 2016). In *The Old Lady of Shuangqiang*, He Jufang employs Da Fang Qiang and Xiao Fang Qiang to produce a forceful and clearly articulated vocal style aligned with the dramatic and conflict-driven narrative. This is particularly evident in passages characterized by wide melodic intervals and strong rhythmic emphasis, such as the opening phrase, where Da Fang Qiang generates a broad and powerful vocal quality (see Figure 6).

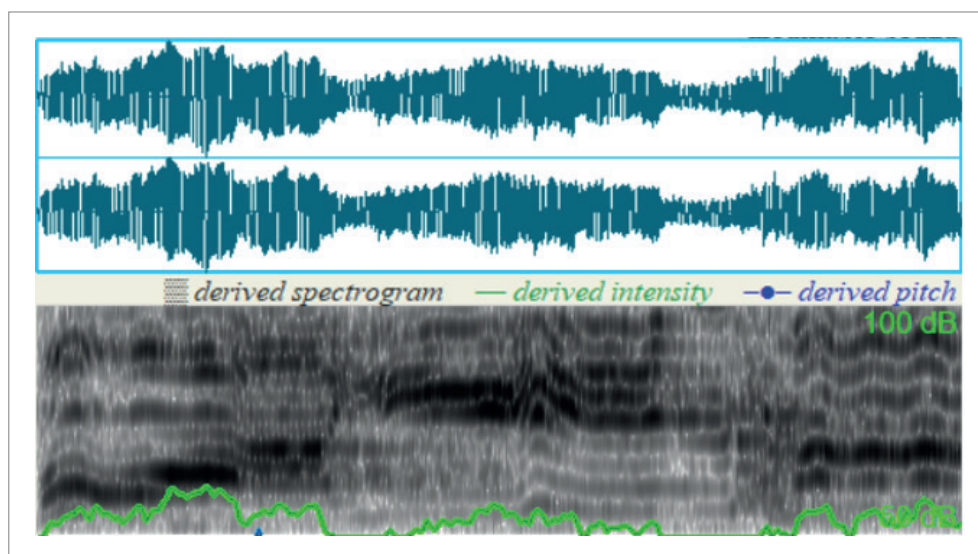
Figure 6

Application of Da Fang Qiang in the Opening Phrase of The Old Lady of Shuangqiang



Figure 7

Acoustic profile of Da Fang Qiang in the opening phrase of The Old Lady of Shuangqiang



As shown in Figure 7, the application of Da Fang Qiang in the opening phrase is characterized by increased intensity and relatively stable pitch production, indicating controlled and forceful vocal delivery. The spectrogram reveals dense harmonic structures, reflecting a strong and resonant vocal quality consistent with the dramatic narrative context.

In contrast, *Chun You Tao Li Zhi Zhi Mao* demonstrates a more lyrical and fluid application of the Shi San Qiang system, characterized by bright tonal quality, predominantly stepwise motion, and gently undulating melodic contours, which support the poetic and nature-oriented imagery of the piece. Within the broader context of Chinese opera and Quyi, qiang functions as a key mechanism for shaping emotional expression and performance style (Fu et al., 2024). In *Hua Zi Liang*, the use of qiang becomes more varied and closely aligned with narrative progression. For example, Ai Qiang is employed to convey sorrow and emotional distress through slower tempo and heavier vocal tone, as illustrated in emotionally intense passages (see Figure 8).

Figure 8

Application of Ai Qiang in Phrase 4 of Hua Zi Liang



Additionally, Da Fang Qiang and Nu Qiang are used to express awakening, resistance, and heightened dramatic tension, often accompanied by increased tempo and vocal intensity. This aligns with research indicating that vocal intensity and acoustic characteristics play a crucial role in emotional communication and expressive differentiation in performance (Liu & Wang, 2025). Such integration is particularly evident in climactic sections, where Nu Qiang is combined with the power of Da Fang Qiang to enhance dramatic impact (see Figure 9).

Figure 9

Combined use of Da Fang Qiang and Nu Qiang in Phrase 13 of Hua Zi Liang



In summary, the analysis of vocal techniques in Sichuan Bamboo Qin demonstrates that vocal elements namely breathing control, resonance application, the Shi San Qiang (Thirteen Tones) system, decorative techniques, and pronunciation should not be regarded merely as technical skills, but rather as fundamental mechanisms that shape emotional expression and narrative construction in an integrated manner. In the performances of He Jufang, these techniques are applied flexibly in close relation to melodic structure, rhythmic organization (including time signature), and the emotional context of each piece, aligning with the theoretical perspective of Leonard B. Meyer, who argues that musical meaning arises from the interaction between structural elements and listener expectations (Meyer, 1956). Furthermore, the Shi San Qiang system functions as a structural-expressive framework linking melodic organization with emotional articulation, while decorative techniques enhance the aesthetic depth and expressive nuance of vocal performance, a relationship that can be further understood through the concept of music as humanly organized sound proposed by John Blacking (Blacking, 1973). In addition, contemporary research indicates that emotional expression in singing is closely associated with acoustic features such as pitch, intensity, and vibrato (Scherer et al., 2017), and can be systematically explained through vocal parameters including glottal flow and spectral characteristics (Sundberg et al., 2021); therefore, vocal techniques in Sichuan Bamboo Qin reflect a dynamic interaction between musical structure, perceptual processes, and artistic expression, forming a crucial foundation for the sustainability and transmission of this intangible cultural heritage in contemporary contexts.

Decorative Techniques

Decorative techniques play a significant role in enriching emotional nuance and expressive vitality in Sichuan Bamboo Qin. These techniques include vibrato, glissando, and melodic ornamentation used to emphasize key textual elements, functioning both as technical devices and expressive tools (Kumar et al., 2025). In *The Old Lady of Shuangqiang*, He Jufang employs vibrato on sustained notes to enhance vocal weight and intensity through controlled vibrato rate and extent. In contrast, *Chun You Tao Li Zhi Zhi Mao* features more delicate use of glissando and subtle vibrato, contributing to a smooth melodic flow and a descriptive,

poetic atmosphere. In *Hua Zi Liang*, decorative techniques are applied more selectively and with restraint, emphasizing the solemn and introspective emotional character of the piece (see Figure 10). This approach is consistent with studies suggesting that variations in vibrato significantly influence emotional perception and musical expression (Han & Zhang, 2017).

Figure 10

Glissando and vocal ornamentation in "Zhi" phrase



The Relationship between Singing and Sichuan Bamboo Qin

The findings indicate that the relationship between voice and instrumental accompaniment in Sichuan Bamboo Qin constitutes an integrated system of musical interaction that links rhythm, melody, and narrative through key mechanisms, including rhythmic synchronization, melodic echo, and phrase filling, which collectively enhance continuity and emotional expression (De Souza, 2017). The vocal line is closely coordinated with the rhythmic patterns of *jianban* and *zhugu*, which establish the primary temporal framework; for example, vocal accents frequently align with strong beats ("chi") and weak beats ("dong", "cang"), resulting in a stable rhythmic structure that supports narrative delivery (see Figure 11). In *The Old Lady of Shuangqiang*, the alignment of vocal phrasing with *jianban* strikes reinforces dramatic intensity and emotional clarity, consistent with theories of vocal-instrumental coordination in performance (D'Amaro et al., 2020).

Figure 11

Rhythmic synchronization between vocal accents and jianban in The Old Lady of Shuangqiang



Beyond rhythmic coordination, instrumental accompaniment plays a crucial role in maintaining structural continuity through melodic echo and phrase filling. As the vocal line completes a phrase, the instruments respond with short melodic figures that mirror or develop the preceding material, creating a dialogic, question-answer relationship between voice and accompaniment. This is particularly evident in *Chun You Tao Li Zhi Zhi Mao*, where instrumental responses not only echo the principal melody but also fill inter-phrase gaps with short rhythmic patterns (e.g., "chang-dong-dong-chang-dong"), thereby ensuring structural coherence and reinforcing the poetic atmosphere associated with themes of nature and seasonal imagery (Sandberg-Jurström, 2022).

Figure 12*Phrase-filling and call-response between voice and jianban accompaniment*

In summary, the interaction between voice and instruments in Sichuan Bamboo Qin can be understood as a complex and integrated musical system in which rhythmic synchronization, melodic reflection, and phrase completion function together to create unity and expressive continuity. This perspective aligns with classical theories of musical structure and meaning (Lerdahl & Jackendoff, 1983; Meyer, 1956), as well as with contemporary concepts of interpersonal entrainment that emphasize coordination and interaction among performers in musical contexts (Clayton et al., 2020). From a semiotic perspective, this interaction may also be interpreted as a system of communicative signs, in which vocal and instrumental elements function together to construct and convey narrative meaning within performance (Nattiez, 1990). In this framework, He Jufang's performance exemplifies an effective realization of this system, in which the voice serves as the narrative core while instrumental accompaniment supports rhythm, melody, and expressive atmosphere, resulting in a distinctive form of voice-centered performance with instrumental dialogue.

3. CONCLUSION

This study demonstrates that vocal techniques in Sichuan Bamboo Qin, particularly through the case study of He Jufang within the Zhonghe tradition, constitute an integrated performance system that interweaves vocal production, musical structure, and narrative expression. Core elements including breathing control, resonance application, the Shi San Qiang (Thirteen Tones) system, decorative techniques, and diction play essential roles in shaping emotional expression, semantic meaning, and the developmental progression of the repertoire. At the same time, the interaction between voice and instrumental accompaniment contributes to the reinforcement of rhythm, melodic continuity, and narrative coherence within performance. The findings provide an analytical account of the distinctive characteristics of vocal practice in Sichuan Bamboo Qin and offer valuable insights for the study of Chinese folk music as well as the preservation and transmission of intangible cultural heritage. However, as this research focuses on a single performer and three representative pieces, it does not encompass the full diversity of the genre. Future research should therefore expand to include comparative studies across different performers, stylistic lineages, and repertoires in order to achieve a more comprehensive understanding of the dynamics of vocal expression within Chinese quyi traditions.

Ethical approval

The study was approved by Mahasarakham University Ethics Committee for Research Involving Human Subjects (date: 05.11.2025, number: 746-666/2025).

Author contribution

Study conception and design: SL, ST; data collection: SL; analysis and interpretation of results: SL, ST, WS, PS; draft manuscript preparation: SL, ST. All authors reviewed the results and approved the final version of the article.

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Conflict of interest

The authors declare that there is no conflict of interest.

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Çalışmanın tasarımı ve konsepti: SL, ST; verilerin toplanması: SL; sonuçların analizi ve yorumlanması: SL, ST, WS, PS; çalışmanın yazımı: SL, ST. Tüm yazarlar sonuçları gözden geçirmiş ve makalenin son halini onaylamıştır.

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