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Percussion Performance in Sichuan Opera.

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ABSTRACT
This research investigates the percussion performance techniques in Sichuan Opera, a traditional Chinese opera form, focusing on their historical development, artistic characteristics, and impact on modern performances. The study explores the unique role of percussion instruments, including gongs, cymbals, and drums, in shaping the rhythm and emotional expression of Sichuan Opera. Through a combination of historical analysis, performance observation, and expert interviews, this research identifies and categorizes various percussion techniques used in Sichuan Opera, highlighting their importance in the overall artistic expression and dramatic narrative. The findings suggest that Sichuan Opera's percussion system is integral to its identity, providing both rhythmic structure and emotional depth to performances. In conclusion, the study emphasizes the need for innovative approaches to preserve and modernize the transmission of Sichuan Opera percussion techniques, ensuring their relevance to contemporary audiences. It is recommended that educational programs incorporate systematic training in percussion techniques, while also exploring cross-disciplinary collaborations to enhance the appeal of Sichuan Opera to younger generations..

1. INTRODUCTION

Sichuan Opera *(Chuanju)* is a major regional form of Chinese traditional *Xiqu*, primarily flourishing in central and eastern Sichuan and extending into parts of Yunnan and Chongqing, with Sichuan and Chongqing serving as its core cultural regions. Deeply rooted in the fertile cultural soil of Bashu civilization, Sichuan Opera has developed within a distinctive geographical, linguistic, and aesthetic environment. As a representative gem among traditional Chinese opera forms, it possesses a long history, a rich artistic system, and profound cultural heritage (Du Jianhua, 2008). In 2006, it was inscribed on the national list of Intangible Cultural Heritage of China, reflecting its significant historical and artistic value. Within this artistic system, percussion plays an indispensable role. The percussion ensemble of Sichuan Opera not only embodies the strong regional characteristics of the Bashu area but also functions as a central driver of the genre's aesthetic expression. Characterized by a rich repertoire of *qupai* (musical patterns), striking timbres, and highly diverse rhythmic structures, Sichuan Opera percussion has exerted irreplaceable influence on the formation and evolution of the art form. Despite its artistic importance, academic research on Sichuan Opera percussion—especially its performance techniques—remains insufficient. Against the backdrop of rapidly expanding modern musicological theories and practices, the need to study Sichuan Opera percussion using more systematic, scientific, and refined approaches has become increasingly urgent.

The historical development of Sichuan Opera percussion can be traced to the folk performing arts of the Ming and Qing dynasties, particularly the popular regional theatrical forms of *Dengxi, Chedengxi, Baba xi, Duangong xi, and Nuoyuan xi*. These genres incorporated a wide variety of gongs, drums, suona, and other instruments, forming comprehensive rhythmic systems with stable metric patterns (Zuo Juncheng, 1991). These traditions not only reflected the richness of local folk culture but also accumulated a wealth of musical materials that laid the foundation for Sichuan Opera's luogujing (gong-and-drum music). Over time, Sichuan Opera percussion gradually integrated, refined, and expanded these materials while simultaneously drawing on the strengths of *Kunqu, Gaoqiang, Huqin, Tanxi,* and other operatic music systems. Through this

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continuous process of absorption and transformation, Sichuan Opera developed a distinctive and relatively complete percussion system with both regional identity and artistic sophistication.

The present-day instrumentation of Sichuan Opera percussion is highly diverse. Core instruments include the *xiaogu* (or ban gu, responsible for tempo control), *shouban* (hand clapper for beat marking and cueing), *tanggu, daluo* (the deep-toned "backbone" of the ensemble), *dabo* (large cymbals with powerful sonority), maluo (a high-pitched small gong requiring unique tossing techniques), xiaoluo, as well as smaller percussion instruments such as *jiaozi, dangdang, and bangzi.* Additional instruments—such as *subo, qingjiao,* hanging cymbals, bass drums, *manluo, yunluo*, and other effect-oriented pieces—are incorporated as needed for dramatic intensification (Huang Yiliang, 1980). In contemporary practice, even orchestral percussion (e.g., timpani, triangle) may be borrowed to further expand expressive capacity. The coordination and stylistic unity of this ensemble rely on the drum master, whose leadership integrates diverse timbres, techniques, and rhythmic gestures into a coherent musical and dramatic framework.

As an artistic treasure of Bashu culture, Sichuan Opera reflects local linguistic patterns, aesthetic preferences, and social customs. Its singing is melodic and deeply colored by regional speech tones, while its performance style is vivid, unrestrained, and grounded in everyday life. Percussion in Sichuan Opera not only shapes the overall rhythmic structure and supports actors' performances but also participates actively in dramatic narration. Through the deployment of diverse *luogudianzi* (gong-and-drum formulas), percussion portrays characters' psychological states, delineates actions and settings, and constructs atmosphere. As the traditional saying goes, "Three-tenths singing, seven-tenths beating," and "Half the show is the gongs and drums," underscoring the centrality of percussion in the operatic system.

One scholar aptly likened Sichuan Opera's musical and performative elements—its singing, speech, acting, and movement—to a string of brilliant pearls, held together by the "golden thread" of percussion. Without this golden thread, the pearls would scatter, and the art would lose its cohesive power. Indeed, Sichuan Opera percussion not only governs performance rhythm and stage energy but also, through its changes in rhythm, texture, and timbre, vividly intensifies dramatic conflict, enriches emotional expression, and enhances audience engagement.

Given its artistic importance and the relative paucity of systematic research, this study aims to conduct a comprehensive examination of Sichuan Opera percussion performance techniques. Specifically, it seeks to (1) trace and synthesize the historical development of Sichuan Opera percussion; (2) analyze its distinctive playing techniques and artistic characteristics; (3) summarize the ways in which percussion enhances dramatic and musical expression; and (4) explore viable contemporary pathways for the inheritance and innovative development of Sichuan Opera percussion. Through this research, the study intends to contribute both theoretical insights and practical guidance for the preservation and revitalization of Sichuan Opera in the modern era.

2. LITERATURE REVIEW

Origin and Historical Evolution of Sichuan Opera

Sichuan Opera, the most influential regional opera of Southwest China, took shape during the Ming–Qing period through the fusion of multiple vocal traditions *Gaoqiang, Huqin, Tanxi, Kunqiang, and Dengdiao.* In the late Ming and early Qing, outside styles such as *Kunqu, Yiyang Qiang, Qingyang Qiang, Bangzi, and Han Opera* entered Sichuan and gradually merged with local folk music (e.g., rice-planting songs, boatmen's songs, lantern-theater tunes), forming a localized Sichuan style. By the 1911 Revolution, these vocal systems began to be performed together on the same stage, resulting in the well-known "five voices in harmony," a pattern that continues today. Scholars such as Guo Yong and Tan Shaohua (1979) have shown that the evolution of Sichuan Opera's vocal system reflects broader trends in Chinese opera. Regional differentiation in the late Qing and Republican eras produced the "four river-system schools": *Chuanxi Bazi, Ziyang River, Chuanbei, and Xia Chuandong*—each with distinct musical styles and dialectal coloration. The Chengdu-centered Bazi school is simple and melodious; the Ziyang River school is refined and delicate; the *Chuanbei* school, influenced by Qin Opera, favors *Tanxi* and flexible percussion; and the Chongqing-based *Xia Chuandong* school emphasizes Huqin *(erhuang)* with diverse singing and speech. This framework is essential for analyzing musical and performance features (Zhou Qixu, 2004). Research has also documented key performers, artistic lineages, and stylistic schools (e.g., the "Huan School" of Dan roles and the "Fu School" of Chou roles) and the contributions of major musicians. However, studies focusing specifically on percussion masters remain limited, indicating a research gap in backstage musical roles (Zhong Shanxiang, 1990).

Artistic Characteristics and Performance Structure of Sichuan Opera

Sichuan Opera is known for its integrated performance system—singing, speech, acting, combat, and dance—supplemented by high-difficulty acrobatic "special skills" (Jia Chunhua, 2020). Its performance structure centers on the combination of chorus (bangqiang), percussion, and singing. Gaoqiang in particular retains the traditional a cappella style of "one sings, all harmonize," where the chorus sets pitch, enhances atmosphere, and comments on dramatic action. Percussion closely complements movement and vocal delivery, shaping rhythm, mood, and stage effect. A defining feature of Sichuan Opera is its repertoire of stunts—face-changing, concealing swords, fire-spitting, pole climbing, "third-eye" tricks, beard manipulation, and various sleeve techniques. These blend magic, acrobatics, and operatic movement, often requiring special props, stage conditions, and long-term training. The most iconic is face-changing, developed in the 20th century, which uses

wiping, blowing, pulling, and "air-transferring" methods to show rapid emotional shifts. Such stunts contribute strongly to the opera's visual impact and artistic identity (Douyin Encyclopedia, 2024). Overall, Sichuan Opera's integration of chorus, percussion, expressive movement, and spectacular stunts creates a vivid stage style and a highly distinctive artistic personality (Jia Chunhua, 2020).

Musical Form and Vocal System of Sichuan Opera

Sichuan Opera's musical system is defined by the coexistence of five major vocal styles: *Gaoqiang, Kunqiang, Huqin, Tanxi, and Dengdiao.* Except for the locally derived Dengdiao, all other styles were transplanted from other regions and localized through Sichuan dialect and aesthetics (Jia Chunhua, 2020). G*aoqiang*, originating from Yiyang Qiang, emphasizes "one sings, all harmonize" and relies heavily on chorus and percussion; it accounts for about 70% of the traditional repertoire. Kunqiang retains a delicate, elegant timbre; Huqin Qiang, rooted in the Pihuang system, uses smooth, lyrical melodies; Tanxi, influenced by Qin Opera, is marked by semitone-rich, bittersweet emotional coloring; and Dengdiao features lively, rustic folk humor. Two main musical structures appear: qupai medley form, in which different tune patterns are strung together (especially in Gaoqiang); and banqiang variation, which employs rhythmic patterns such as manban, kuaiban, and sanban, more common in Huqin melodies. The coexistence of multiple vocal systems leads to the phenomenon of "one play, many styles," demanding versatility from performers (Douyin Encyclopedia, 2024). The accompaniment ensemble consists of wenchang (strings and winds) and *wuchang* (percussion), with instrumentation varying by vocal style: Gaoqiang traditionally uses only chorus and percussion; *Kunqiang* favors flute and pipa; Huqin uses high-pitched fiddles; *Tanxi* had a specialized two-string fiddle; and *Dengdiao* uses simple folk instruments. Sichuan Opera percussion, known as a "marvel of *Chuanju,"* is famed for its fluidity, coordination with movement, and distinctive patterns (Chen Dehou, 2004). In sum, Sichuan Opera's musical richness—its multi-vocal integration, structural diversity, and unique accompaniment—provides strong support for narrative expression and character portrayal.

3. CONCEPTUAL FRAMEWORK

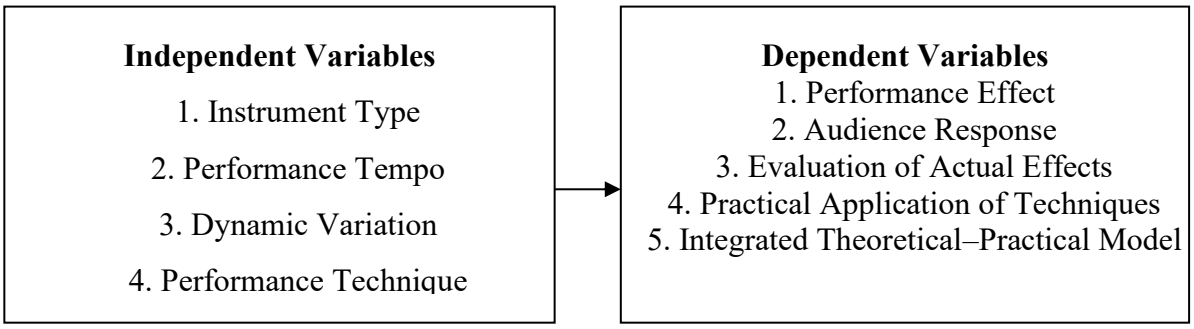

Figure 1 Conceptual framework

4. RESEARCH OBJECTIVES

To clearly define the research content and effectively realize its value, this study sets the following objectives:

1. To analyze the specific performance techniques of Sichuan opera percussion.
2. To analyze the application effects of different Sichuan opera percussion.
3. To create the strategies for the transmission and innovation of Sichuan Opera percussion.

5. SCOPE OF RESEARCH

Content scope: This study focuses on performance techniques of primary Sichuan Opera percussion instruments. It covers gongs (*daluo, xiaoluo, maluo*), cymbals (large cymbals, jiaozi), and drums (*ban gu, tanggu,* etc.), with descriptions of techniques and case analyses. It also examines the structure and artistic function of common *qupai* patterns and how their musical design shapes required performance techniques.

Variables scope: Independent variables include instrument type (materials, specifications, timbre), performance tempo, dynamics, technical categories (single strikes, thrown-mallet, striking positions), and *qupai* type (*dan chui, chang chui, Shangshanhu*, etc.).

Dependent variables concern artistic performance effects emotional expressiveness, dramatic tension and audience evaluations such as interest, emotional resonance, and satisfaction.

Population scope: The research targets two groups: (1) Sichuan Opera percussion performers, especially drum masters and ensemble players, who can provide expert technical insight; (2) audiences in Sichuan and surrounding regions with viewing experience or musical training, whose feedback reflects aesthetic perception. Sampling will cover regions representing different percussion schools, including *Chengdu, Chongqing, Ziyang, Zigong, and Mianyang.*

Time scope: The study spans from the 1950s to the present, covering the post-1949 development period, the Cultural Revolution, the Reform and Opening-up revival, and the contemporary digital era. Reviewing these stages reveals changes, innovations, and socio-cultural functions in Sichuan Opera percussion techniques, forming a basis for evaluating current issues and future trends.

6. RESEARCH METHODOLOGY

Research Design

This study aims to systematically examine the structure, functions, historical evolution, and contemporary practice of Sichuan Opera percussion. It focuses on four core questions:

1. Types and applications of percussion: What percussion instruments and *luogujing* patterns are used? In which dramatic situations? What artistic functions do they serve?

2. Drum master's performance logic: How drum masters (both conductors and lead percussionists) make real-time decisions, improvise, and coordinate with actors and vocal music to shape stage rhythm and dramatic flow.

3. Interaction of *luogujing* and performance: How traditional patterns correspond to stage movements, reinforce dramatic tension, and embody the aesthetic principle of "three-tenths singing, seven-tenths percussion."

4. Contemporary changes: How modern stagings reinterpret, modify, or innovate traditional percussion patterns and performance styles.

Overall Design Approach

To answer these questions, the study adopts a mixed-methods approach centered on qualitative research

1) Fieldwork provides first-hand, situationally grounded observations of live performance.

2) Interviews uncover practitioners' tacit knowledge, aesthetic concepts, and internal logic.

3) Literature review establishes historical context and identifies research gaps.

4) Case analysis of selected plays reveals concrete applications of percussion patterns.

This integrated design balances depth with breadth and builds a solid foundation for subsequent analysis.

Population and Sample

1. Population Fieldwork focuses on two major professional institutions representing mainstream Sichuan Opera practice:

Chongqing Sichuan Opera Theater

Sichuan Province Sichuan Opera Theater

Key groups investigated include:

Percussion performers (drum masters and percussionists)

Actors, whose movements and singing interact with percussion

Audience members, providing reception feedback

2. Sampling Method A combination of purposive sampling and snowball sampling is used:

Purposive sampling selects senior, influential drum masters and experienced practitioners with deep knowledge of performance conventions.

Snowball sampling expands the sample through referrals, reaching retired veterans, lineage holders, younger practitioners, and technical staff.

This hybrid strategy ensures:

depth of expertise,

diversity of artistic perspectives,

representation across age, experience, and stylistic backgrounds.

3. Sample Size

10–15 representative plays across styles, periods, and genres (civil/martial; traditional/modern)

10–15 in-depth interviews with drum masters, percussionists, and experienced actors

This range enables detailed case studies while supporting cross-case comparison.

Data Collection Methods

A multi-dimensional strategy integrates qualitative and quantitative methods.

1. Qualitative Research

1) Interviews: Semi-structured interviews are conducted with drum masters, percussionists, actors, directors, and music directors to explore:

Principles of performance and improvisation

Strategies for coordination with actors

Perspectives on traditional versus contemporary practice

Experiences of skill transmission and pedagogical processes

Interviews follow a flexible guide to ensure depth and allow participants' insights to emerge organically.

2) Field Observation: Extended observation of rehearsals and performances is undertaken to document:

Gestures, cues, and tempo adjustments of drum masters

Synchronization of *luogujing* patterns with stage movement

Backstage communication and improvisational practices

Relationships between percussion and dramatic expression

3) Participant observation (learning basic rhythms) enhances insider understanding.

Field notes include dates, venues, casts, percussion details, patterns used, and situational reflections.

2. Quantitative Research

1) Frequency Statistics Quantitative counts of:

Types and frequency of luogujing patterns

Instrumentation configurations

Rhythmic motifs across scenes

These statistics facilitate identification of structural regularities and stylistic tendencies.

2) Structural Quantification Tabular and graphical comparisons are conducted to assess:

Rhythmic structures in traditional versus modern productions

Instrument usage patterns

Scene-by-scene relationships between rhythm and dramatic function

3) Audience Surveys Post-performance questionnaires collect data on:

Awareness and recognition of percussion

Perceived dramatic impact

Satisfaction with rhythm, coordination, and volume

Differences across demographic variables (e.g., age, educational background, familiarity with opera)

Quantitative data are employed to validate and triangulate qualitative insights.

Data Collection

Data are collected and systematically cataloged under the following categories:

1. Repertoire Materials – scripts, vocal scores, archival videos, and recordings provided by the troupes.

2. Drum Scores and Notation – published scores, instructional materials, and transcriptions from drum master demonstrations.

3. Interview Transcripts – anonymized and fully transcribed records of all interviews.

4. Field Observation Records – detailed logs of rehearsals and performances, supplemented with photos and audio where permitted.

A standardized cataloging system, including IDs, metadata forms, observation checklists, and uniform interview protocols, ensures consistency, reliability, and ease of access.

Data Analysis

Data analysis integrates qualitative and quantitative methods to comprehensively address the research questions.

1. Comparative Analysis of Luogujing Structures

Cross-case comparison of rhythmic motifs, instrumentation, and formal structures

Correlation with dramatic types, stylistic lineages, and historical periods

2. Thematic Coding of Interviews

Identification of recurrent themes regarding improvisational strategies, rhythmic management, performer coordination, and aesthetic values

Analysis of skill transmission and pedagogical approaches

3. Audience Reception Analysis

Statistical examination of audience perceptions and preferences

Cross-demographic comparisons

Assessment of responses to traditional versus innovative percussion elements

Collectively, these analytical procedures facilitate a rigorous, evidence-based understanding of Sichuan Opera percussion from musical, performative, and cultural perspectives.

7. RESEARCH RESULTS

Specific Performance Techniques of Sichuan Opera Percussion

This study examines Sichuan opera percussion performance and audience responses across seven dimensions: instrument type, tempo, intensity, technique, fixed melodic patterns, artistic effect, and audience evaluation. Data were collected from 436 respondents, including demographics such as gender, age, education, and experience with Sichuan opera, to explore variations in perception and appreciation. A seven-dimension scale was developed to measure attitudes, feelings, and preferences, capturing aspects from sound impact and emotional expression to rhythm and stage coordination. Analyses included reliability testing, factor verification, descriptive statistics, group comparisons, and multivariate regression to assess the relationships and influence of each dimension. The results detail differences in percussion attributes, including instrument type, playing speed and intensity, technique, tune, artistic effect, and audience evaluation, offering a systematic understanding of the role and perception of Sichuan opera percussion.

Table 1 Descriptive analysis of instrument types

Name	Min	Max	M	SD
1. The big gong has a strong impact in Sichuan opera performances.	1	5	3.61	1.018
2. Bangu can effectively mobilize the rhythm and atmosphere of the stage.	1	5	3.61	1.01
3. The timbre of the Ma Luo is unique and highly recognizable.	1	5	3.58	1.06
4.The hinge plays an important role in expressing delicate emotions.	1	5	3.58	1. 03
5.The use of drums in transitional passages enhances dramatic tension.	1	5	3.54	1.07
6. The small gong is often used to express tense or surprising situations.	1	5	3.54	1.05
7. Different gong types can significantly enhance the overall auditory layering.	1	5	3.60	0. 97

From Table 1, in the descriptive analysis of the "instrument type" dimension in Sichuan opera percussion, seven items were assessed, covering the performance functions of the big gong, bangu, horse gong, hinged drum, hall drum, small gong, and various gong combinations. These functions range from sound characteristics and emotional expression to auditory construction. The mean scores (M) ranged from 3.541 to 3.61, with standard deviations (SD) between 0.97 and 1.07, indicating generally positive audience attitudes and moderate individual differences. The item “The big gong has a strong

impact in Sichuan opera performances" scored highest (M = 3.61, SD = 1.01), reflecting its role in enhancing dramatic impact, shaping stage climaxes, and symbolizing "opening and setting the tone" and "highlighting tension." Next, "The *bangu* can effectively mobilize stage rhythm and atmosphere" (M = 3.61) underscores its core role in rhythm control and emotional expression. Finally, "The combination of different gongs can improve overall auditory layering" (M = 3.608, SD = 0.97) indicates audience recognition of the spatial, layered, and tension-filled effects created by coordinated percussion, highlighting the artistic value of instrument combinations.

Table 2 Descriptive analysis of playing speed

Name	Min	Max	M	SD
1. The fast tempo is effective in eliciting an emotional response from the audience.	1	5	3.54	1.02
2. The medium tempo is more suitable for expressing the psychological changes of the characters.	1	5	3.50	1.06
3. The slow tempo creates a good sense of immersion when used in tragic scenes.	1	5	3.53	1.02
4. The rhythm of Sichuan opera percussion instruments is rich in variations, which enhances the overall sense of rhythm.	1	5	3.48	1.00
5. Switching between different speeds enhances the dynamics of the stage performance.	1	5	3.51	1.06
6. The fast pace helps to heighten the tension of the action scenes.	1	5	3.58	1.09
7. Appropriate speed can promote emotional progression.	1	5	3.54	1.02

From Table 2, in the descriptive statistical analysis of the "performance speed" dimension of Sichuan opera percussion, seven items were evaluated, covering aspects from rhythm changes to plot promotion and emotional expression. The mean scores (M) of all items ranged narrowly from 3.48 to 3.58, all above the theoretical median of 3, indicating a generally positive audience perception of rhythm speed. The highest-rated item, "fast rhythm can enhance the tense atmosphere of action scenes," had M = 3.58 and SD = 1.09, showing that audiences most prominently recognize the role of fast rhythms in heightening dramatic tension during fights, chases, and sudden plot shifts. Other highly rated items—"fast rhythm can effectively stimulate the audience's emotional response" (M = 3.54, SD = 1.02) and "appropriate speed drives the progression of emotions" (M = 3.54, SD = 1.02)—highlight the perceptible link between rhythm speed and emotional intensity. These findings suggest that Sichuan opera percussion functions not merely as a mechanical rhythm tool but as an "emotional device," whose speed modulation shapes the audience's emotional journey and the aesthetic rhythm of the performance.

Table 3 Descriptive Analysis of Performance Dynamics

Name	Min	Max	M	SD
1. The powerful percussion enhances the visual impact of the plot conflict.	1	5	3.49	0. 99
2. Weak force strikes are more suitable for expressing delicate emotions.	1	5	3.44	0.99
3. Crescendo performance can effectively render the accumulation process of emotions.	1	5	3.45	1.02
4. The fading process adds space for the emotions to fall back at the end.	1	5	3.47	1.05
5. Sudden changes in dynamics can enhance the drama of a stage performance.	1	5	3.43	1.01

Name	Min	Max	M	SD
6. The combination of different forces makes the music performance more layered.	1	5	3.42	0.99
7. Clear changes in dynamics are a sign of high-level performance.	1	5	3.45	1.05

From Table 3, a descriptive statistical analysis on the "performance intensity" of Sichuan opera percussion instruments, using seven items to examine their effects on stage performance and emotional expression. As shown in Table 3, the mean values (M) for all items ranged from 3.42 to 3.49, exceeding the theoretical median of 3, indicating general agreement that intensity plays a functional role in percussion, influencing dramatic conflicts, emotional expression, and hierarchical dynamics. The item "strong intensity of percussion improves the visual impact of plot conflicts" scored highest (M = 3.49, SD = 0.99), reflecting audience perception that high-intensity percussion enhances plot highlights. In high-tension scenes—such as confrontations, conflicts, or supernatural appearances—strong percussion creates audiovisual synergy with actors' movements and speech, heightening audience immersion and tension. Additionally, "crescendo performance effectively renders the accumulation of emotions" (M = 3.45) and "decrescendo increases space for emotional release" (M = 3.47) indicate audience sensitivity to dynamic control in emotional pacing. Crescendos convey the buildup from internal struggle to emotional outburst, while decrescendos, often used at plot conclusions or moments of psychological transition, create space for reflection and enhance narrative aftereffects.

From the perspective of standard deviation (SD), the seven indicators show moderate fluctuation (0.99–1.05), indicating that respondents' evaluations are generally consistent. Some items, however, reflect subjective differences. For example, "Sudden changes in intensity can enhance the drama of stage performance" suggests that audiences recognize how rhythm interruptions increase stage tension, though perception may vary with individual experience and familiarity with percussion. Such intensity changes are often used to create unexpected dramatic effects, whose success depends on precise coordination between the director's rhythm design and percussion performance.

Table 4 Descriptive analysis of technique categories

Name	Min	Max	M	SD
1. The percussion technique can accurately express the rhythm and strength of the movement.	1	5	3.45	0. 98
2. The throwing and striking technique embodies the unique performance charm of Sichuan opera percussion instruments.	1	5	3.44	0.99
3. The percussion technique brings a strong auditory impact.	1	5	3.49	0. 96
4. There is a clear difference in timbre between striking the edge and striking the center, and the playing effect is rich.	1	6	3.53	0. 97
5. Alternating between different striking positions can enhance rhythm changes.	1	5	3.37	1.00
6. The rich variety of techniques makes the gong and drum performance more interesting to watch.	1	5	3. 40	0. 95
7. Some techniques are of high difficulty and performance challenges.	1	5	3.43	0. 98

From Table 4, in Sichuan opera percussion, performers' choice and use of technical categories reflect their professional skill and largely shape the stage's auditory tension and visual impact. Table 4 presents descriptive statistics for seven items related to "technical category," with averages between 3.37 and 3.53 above the theoretical median of 3 indicating that audiences generally recognize and appreciate the techniques and their expressive role in stage aesthetics. The highest-rated item, "the timbre difference between hitting the edge and center is obvious, and the performance effect is rich," shows that audiences are sensitive to timbre variations and their contribution to the overall soundscape. For example, instruments like bangu and

gong produce crisp, clear sounds at the edge and thick, solid tones at the center, serving dramatic functions such as prompting, rendering, and advancing the narrative. This recognition suggests that audiences increasingly perceive percussion not merely as rhythm instruments but as integral to the aesthetic and expressive design of the performance.

Table 5 Descriptive analysis of *qupai* types

Name	Min	Max	M	SD
1. The single hammer rhythm is concise and powerful, suitable for expressing fast action scenes.	1	5	3.24	0. 91
2. The long hammer has rich rhythmic changes, which is suitable for expressing emotional ups and downs.	1	5	3.19	0. 94
3. The Shangshanhu tune has strong local style characteristics.	1	5	3.22	0. 92
4. The use of tunes fits the rhythm of the plot.	1	5	3.20	1.00
Different tunes show strong functionality in different plays.	1	5	3.19	1.03
5. Fit between the tune and the performance content affects the audience's understanding of the plot.	1	5	3.14	1.01
6. Familiar tunes are more likely to resonate with the audience.	1	5	3.21	0. 95

From Table 5, in Sichuan opera percussion, qupai, as a highly regional and functional musical unit, plays a key role in advancing the plot, enhancing emotional atmosphere, and conveying cultural style. Analysis of the seven qupai-related items in Table 5 shows that audience perception of different qupai types is generally upper-middle, with mean scores from 3.149 to 3.24 and standard deviations from 0.91 to 1.03. Overall evaluations are relatively stable but slightly varied, indicating individual differences in acceptance. Notably, "single hammer rhythm is concise and powerful, suitable for expressing fast action scenes" ranks highest (M=3.24, SD=0.91), reflecting audience appreciation for its clear, direct rhythm and structure. In action-packed scenes, the single hammer's dense, recognizable rhythm heightens tension, stimulates sensory excitement, and efficiently conveys dramatic information. This suggests that intuitive, easily decoded rhythms are more likely to gain audience recognition and contribute to a drama's appeal.

Table 6 Descriptive Analysis of Artistic Expression Effects

Name	Min	Max	M	SD
1. Percussion instruments can effectively highlight the emotional changes of characters.	1	5	3.65	0. 97
2. Sichuan opera percussion music has a strong visual and auditory appeal.	1	5	3.67	0. 96
3. The rhythm changes of percussion instruments directly affect the performance rhythm of the entire play.	1	5	3.65	0. 93
4. The combination of different percussion instruments can enrich the stage sound space.	1	5	3.50	0. 92
5. Percussion instruments play a key role in expressing emotions such as joy and sorrow.	1	5	3.58	0. 95

From Table 6, In the artistic expression system of Sichuan opera percussion, the dimension of artistic effect is a key indicator of how well music integrates with plot, emotion, and space. As shown in Table 6, the average scores of five items range from 3.50 to 3.67, with standard deviations between 0.92 and 0.97, indicating consistent audience evaluations at an upper-middle

level. The highest-rated item, "Sichuan opera percussion has a strong visual and auditory appeal," highlights the audience's recognition of its sensory impact. With vivid performance, diverse instruments, and strong rhythmic intensity, Sichuan opera percussion offers an integrated audio-visual experience. The layered beats of gongs and drums, combined with performers' movements and rhythmic variations, create concrete and visualized sound, enhancing stage appeal. This synergy of sight and sound distinguishes Sichuan opera percussion and is key to creating an immersive atmosphere.

Table 7 Descriptive analysis of audience response evaluation

Name	Min	Max	M	SD
1. I can clearly feel the effect of percussion music on the plot.	1	5	3.71	0. 91
2. The rhythm of the percussion music fits the plot, making it easier for me to immerse myself in the story.	1	5	3.66	0. 91
3. The rich rhythm of gongs and drums makes me more interested in Sichuan Opera.	1	5	3.67	0. 92
4. The expressiveness of the percussion enhanced my emotional resonance with the characters.	1	5	3.62	0. 87
5. I am more likely to remember the plot content of scenes where percussion highlights the music.	1	5	3.74	0. 96

From Table 7, in the "audience response and evaluation" dimension, the five statements examine how Sichuan opera percussion affects the audience's emotions, cognition, memory, and interest. The mean scores range from 3.6 to 3.75, indicating generally positive audience perceptions. The highest-rated item, "I am more likely to remember the plot content of the scenes highlighted by percussion," scored 3.74, highlighting percussion's role in reinforcing key plot points. "I can clearly feel the rendering effect of percussion on the plot" (M = 3.71) and "The rich gong and drum rhythm makes me more interested in Sichuan opera" (M = 3.67) also scored highly, demonstrating its emotional guidance and engagement. Overall, percussion enhances plot comprehension, audience participation, and immersion, showing that Sichuan opera percussion has evolved from a formal performance element into a narrative tool that conveys emotion, builds dramatic tension, and shapes audience experience.

8. DISCUSSION

1. The strategies for the transmission and innovation of Sichuan Opera percussion

Sichuan opera percussion, with its rich rhythms and expressive symbolism, plays a central role in shaping the drama's emotional and narrative flow. Yet its systematic transmission faces modern challenges. Traditionally, techniques such as "single hammer" or "mountain tiger," and methods like "throwing" or "knocking" have been passed down orally and through mentorship. Interviews with senior performers show that this fragmented approach leaves new drummers uncertain, particularly when combining or adapting techniques. Researchers propose a multi-layered classification system integrating physical execution, stage function, and instrument-specific methods. Codifying striking techniques by movement, force, expression, and acoustic traits could provide a scalable guide for teaching and performance, while respecting historical and contextual nuances (Chen & Boonyarutkalin, 2024; Huang & Rattanachaiwong, 2025; Channuwong et al., 2022). The inheritance of Sichuan opera percussion faces a "marginalization-fading-fracture" dilemma amid urbanization, diversified entertainment, and changing youth habits. Reduced audiences and disrupted stage-sound interplay weaken traditional apprenticeship. Fragmented opportunities and non-coded techniques hinder skill preservation (Liu, WongKhamchan, & Wang, 2025; Ning, Maneewattana, & Liu, 2024). Senior drummers advocate digital libraries combining scores, recordings, annotations, and institutional support like grading systems, certification, and youth programs to stabilize the profession, preserve regional styles, and ensure sustainable skill transmission. Modern electronic percussion offers avenues to engage younger generations. Visual interfaces, timbre sampling, and programmable beats align with contemporary aesthetics and learning habits. Digital platforms allow interactive, feedback-driven practice, linking plot, rhythm, and technique in a three-dimensional pedagogical system. Portable instruments expand performance beyond theaters, encouraging public engagement and interdisciplinary experimentation. Experts stress balancing innovation with preservation to ensure traditional techniques are enhanced, not diluted (Chen, Xixiang, 2024).

In conclusion, the future of Sichuan opera percussion depends on combining structured technical classification, educational and institutional support, and digital innovation. A comprehensive approach integrating logical frameworks, cultural

preservation, and interactive pedagogy can empower performers, enrich expressiveness, and sustain this distinctive rhythmic heritage in the modern era.

2. Factors Affecting the Effect of Artistic Expression

Sichuan opera percussion is central to creating atmosphere, shaping emotions, advancing the plot, and conveying cultural meaning. Its artistic expression is influenced by several key factors: 1) Instrument Type: Traditional percussion instruments—such as gongs, horse gongs, and ban drums—differ in timbre, volume, and penetration, shaping the vividness and emotional tone of a performance (Li, 2018; Zhang, 2020). Instrument choice affects performers' creativity and the cultural symbolism conveyed on stage (Wang, 2019). 2) Performance Speed: Tempo modulates dramatic tension and audience engagement. Fast tempos heighten excitement, while slower tempos enhance emotional depth (Chen, 2017). Rhythms also coordinate with lyrics and movements, acting as "scene-scheduling" cues and aiding audience comprehension. 3) Performance Intensity: Sound pressure, volume, and striking methods convey emotion. Strong dynamics express intensity, whereas softer dynamics suit delicate scenes. Techniques like crescendo and decrescendo enhance narrative flow, and dynamics are adjusted for the performance space (Liu, 2016). 4) Technique Categories: Techniques such as knocking, throwing, and impacting create varied timbres and express plot intentions. Striking different points on gongs and drums produces a rich "sound language" that elevates percussion from accompaniment to active narrative (Sun, 2021). 5) Qupai Types: Qupai (tune types) carry structural, emotional, and cultural significance. Specific qupai match scene tempo and style, facilitating audience recognition and cultural immersion (He, 2018). Their inheritance and innovation are crucial for maximizing artistic effect.

Together, instrument type, tempo, intensity, technique, and qupai form a multidimensional framework shaping the artistic and cultural impact of Sichuan opera percussion.

3. Factors affecting audience response and evaluation

Audience response to Sichuan opera percussion reflects both the immediate impact of performance and broader indicators of aesthetic value, cultural communication, and emotional appeal. Five key factors instrument type, playing speed, intensity, technical category, and qupai type shape perception and guide performance practice. 1) Instrument Type Percussion instruments such as bangu, big and small gongs, and horse gong create a rich soundscape and convey regional culture (Chen, 2019; Li, 2020). Audience reactions depend on prior cultural knowledge, with traditional viewers responding emotionally to familiar sounds, while younger audiences may miss symbolic associations. Innovative use must link instruments to stage narrative for coherence (Zhang, 2018). 2) Playing Speed Tempo shapes dramatic and emotional rhythm. Fast passages heighten tension; slow passages enhance reflection. Effective variation guides emotions and aligns with narrative, while abrupt or poorly managed changes can disrupt engagement (Wang, 2021). Monotonous tempos limit their potential as emotional drivers. 3) Intensity Dynamics convey emotional tension. Controlled variations—gradual or sudden enhance audience immersion (Liu & Sun, 2020). Overemphasis on precision at the expense of drama can weaken impact. Integration with lighting, movement, and plot creates a multi-sensory experience. 4) Technical Category Techniques like striking, edge-hitting, or throwing enrich timbre and visual appeal (Zhou, 2017). Without narrative intent, technical displays risk seeming performative. Effective use supports emotion and plot, bridging visual and auditory engagement. 5) Qupai Type Qupai structures musical form and conveys character, scene, and cultural nuance (Huang, 2016). Audience familiarity affects comprehension of rhythm and emotion. Balanced, adaptable use preserves tradition while maintaining relevance; poor adaptation can disrupt engagement.

Optimal audience response emerges from coordinating instruments, tempo, intensity, technique, and qupai. Effective performances integrate stage elements, translate technical skill into emotion, and recontextualize tradition, enhancing both cultural inheritance and immersive experience (Liang, 2022; Chen, 2019).

9. CONCLUSION

This study systematically examined the impact of Sichuan opera percussion on performance artistry and audience response using multi-level, multi-dimensional statistical methods, focusing on audience perception. Descriptive statistics revealed that audiences generally hold a positive view of percussion, perceiving its role in plot development, rhythm control, and character emotion, with rhythm–plot fit, emotional penetration, and memory enhancement being most prominent. Reliability and validity analyses confirmed the scale's robustness, with Cronbach's Alpha exceeding 0.7 and factor analysis supporting the independence of seven dimensions: instrument type, playing speed, intensity, technique, tune type, artistic performance effect, and audience response evaluation. Correlation analysis showed positive relationships between percussion dimensions and outcome variables, particularly tune type, highlighting the synergistic effect of percussion in shaping audience experience. Group difference analysis indicated that gender, education, and years of viewing significantly influence perception, with higher education and more experience correlating with stronger recognition and emotional resonance. This underscores the importance of audience musical literacy for understanding complex percussion structures. Multiple regression analysis confirmed the predictive power of percussion dimensions, with tune type, performance intensity, and technique most influential on artistic performance and audience response. VIF values indicated no multicollinearity, validating the methodological link between structure, performance, and perception.

Overall, this study establishes an empirical framework for understanding the artistic mechanisms of Sichuan opera percussion. The findings show that its aesthetic appeal emerges from the dynamic interplay of multiple dimensions rather than any single element. The results provide a foundation for future opera music creation, percussion teaching, and performance planning, filling a gap in audience-centered research and offering a model for studying traditional opera reception in contemporary contexts.

10. RECOMMENDATIONS

Recommendations for the public

1. Personal Level Strengthen Technical Cognition and Cultural Understanding: Sichuan opera percussion performers should develop along the path of technical cognition performance expression cultural understanding. Many drummers currently rely on imitation, which limits their grasp of rhythm, aesthetic logic, and stage emotion.

2. Social Level Develop Interactive Platforms: Professional troupes, universities, and heritage organizations can establish a Sichuan Opera Percussion Display and Interaction Platform. Open rehearsals, workshops, interactive exhibitions, and basic classes can transform audiences from passive spectators into active participants, enhancing cultural identity. Volunteer guides and resident drummers can improve visibility and engagement.

3. Government Level Establish Preservation and Innovation Funds: Governments can create a Sichuan Opera Percussion Protection and Innovation Fund to support preservation, digitization, and talent development.

11. FUTURE RESEARCH

1. Expanded Geographic Studies: Future research should include marginal and rural regions to capture the full diversity of Sichuan opera percussion traditions.

2. Quantitative and Mixed Methods: Incorporating rhythm analysis software, motion capture, and audience perception surveys can provide measurable data on performance techniques, emotional impact, and learning outcomes.

3. Standardization of Terminology: Developing a unified notation and terminology system will improve consistency in research and teaching.

4. Digital Archiving and Interactive Tools: Longitudinal studies on the effects of digital percussion tools and interactive platforms could guide sustainable technological integration.

5. Cultural Transmission Models: Investigate models for youth engagement, informal learning, and community participation to strengthen public appreciation and cultural continuity

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