



Shaping the Sound of the Zhuang Ethnic Group: Factors Influencing Maguhu Craftsmanship Improvement and Its Comparative Analysis with Erhu

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Abstract

Background and Aim: This study delves into the modernization and evolution of the Maguhu, focusing on improvements in material selection, structural design, and manufacturing techniques. It examines the impact of Erhu standardization on Maguhu, exploring how modern production techniques and cultural adaptation jointly propel its development.

Materials and Methods: Utilizing qualitative research methods such as fieldwork, interviews, and comparative analysis, this study systematically investigates key factors influencing the craftsmanship improvements of Maguhu. Data collection encompassed case studies of representative instrument makers, highlighting their experiences and innovations in craftsmanship.

Results: The findings indicate that while the Erhu manufacturing system offers a reference for optimizing Maguhu's structure and enhancing its timbre, instrument makers selectively adopt these influences to preserve traditional characteristics. The study uncovers that the evolution of Maguhu integrates technological optimization with cultural heritage, providing a novel perspective on the modernization of ethnic musical instruments.

Conclusion: This study elucidates the evolutionary process of Maguhu craftsmanship, emphasizing the balance between traditional craftsmanship and modern adaptation. It ensures both the cultural value and practical usability of Maguhu and offers new theoretical support and practical references for the modernization of ethnic musical instruments.

Keywords: Maguhu; Zhuang Ethnic Group; Instrument Craftsmanship; Influence of Erhu

Introduction

The Maguhu, renowned as the most representative musical instrument of the Zhuang ethnic group in southern China, is named for its resonator crafted from a horse's leg bone (Figure 1). Its unique materials and enchanting timbre make it a rare bowed string instrument that uses bone as a resonator. The Maguhu not only reflects a primitive and simple form but also carries the historical culture, geographical features, and folk customs of the Zhuang people. In 2010, the Debao Zhuang Maguhu Art was listed in the third batch of the Intangible Cultural Heritage of the Guangxi Zhuang Autonomous Region, marking significant efforts towards its preservation and transmission.

According to widely accepted academic views, both the Maguhu and the Erhu belong to the ancient Chinese family of bowed string instruments known as Huqin. Yang (2004) believes that the Maguhu emerged during the Qing Dynasty, and its historical origins can be traced back to the Xiqin of the Tang Dynasty. After spreading to the southwestern region of China, it integrated deeply with Zhuang culture and gradually evolved into the Maguhu. Throughout the historical process of the Maguhu, the Erhu has had a profound influence on it. The modern development of Erhu art, especially its extensive use in solo performances and Chinese orchestras due to its rich expressiveness, and particularly its standardization process, has significantly influenced the evolution of the Maguhu. However, the study of the Maguhu often lacks consideration of the context of the Erhu, which has received less attention in previous research.



Figure 1 Maguhu main body and parts
Note: Photographed by researcher, 2023

Musical instruments are not only carriers of sound but also symbols of cultural memory. Sun (2004) pointed out that the cultural information carried by musical instruments is highly stable and enduring. The physical attributes of an instrument, ranging from its craftsmanship, material selection, and structural changes, reflect the cultural ideology of the people who create and use it. Roland, Bian, & Zhao (2014) argued that examining the production and usage of an artifact offers a deeper understanding of the social and cultural systems in which it exists. Despite the Maguhu's material craftsmanship having evolved from primitive to refined processes, the influencing factors and evolutionary mechanisms behind these changes have not yet attracted sufficient attention from the academic community.

This study begins with the material creation of the instrument, exploring the influence of Zhuang culture on the material selection, craftsmanship, and technological innovation of the Maguhu, and analyzing the cultural connotations and musical practices embedded in its development process. Building on this, the study further explores the impact of the standardized craftsmanship of the Erhu on the technological improvement of the Maguhu. The standardized production of the Erhu provides a comparative reference for the Maguhu, and through a comparison of craftsmanship, timbre, and structure, it can more clearly reveal the direction of its improvement and deepen the understanding of the interactive relationship between instrument making and cultural shaping, thus broadening the horizons of traditional research. Through this research, we aim to reveal the adaptability and development potential of the Maguhu in modern musical practice, providing theoretical support and practical references for the protection and innovation of ethnic musical instruments.

Objectives

1. To analyze the key factors influencing the craftsmanship improvement of Maguhu, including material selection, manufacturing techniques, structural design, and cultural heritage, and to explore how these factors enhance its timbre, playing experience, and modern adaptability.
2. To evaluate the role of Erhu in Maguhu's craftsmanship improvements through a comparative analysis and to examine how Erhu's standardized production techniques and timbral characteristics have influenced the development of Maguhu.

Literature review

The formal development of the Maguhu began in the latter half of the 20th century. With China's economic growth and cultural prosperity, ethnic arts have received increasing attention. Particularly after the 1980s, the Maguhu gradually came into the academic spotlight.

1. Research Content

In terms of research scope, studies on the Maguhu can be categorized into five main areas: General Introduction and Comprehensive Research, Composition and Functional Aspects, Heritage Transmission and Teaching, Performance Techniques and Stylistic Analysis, and Craftsmanship and Improvements. A total of 44 studies have been identified within these areas, with representative scholars including Chen Kunpeng (CKP), Su Shanning (SSN), Liu Min, and Yu Teng.

According to the overall composition of research outcomes, "General Introduction and Comprehensive Research" accounts for 25% of the total, yet most of these works focus on historical and

cultural descriptions, lacking in-depth analysis and academic rigor. On the other hand, research on "Craftsmanship and Improvements" of the Maguhu constitutes the smallest proportion—only 11%, indicating a significant research gap in this field. This part of the research not only yields fewer results but also receives attention relatively late, reflecting the inherent limitations of the Maguhu as a folk instrument and the external adaptability characteristics of cultural policies.

Specifically, the craftsmanship of the Maguhu has long been neglected, with the traditional concept of using locally available materials continuing to this day, leading to a very limited number of artisans specializing in Maguhu making. According to Yu (2022), there are currently only six Maguhu makers in the entire Guangxi region, with the youngest already 64 years old and the oldest over 80, many of whom can no longer continue their craft. This situation not only affects the inheritance of the Maguhu but also limits its application in modern musical practice. Since the 1980s, the Maguhu has begun to attract scholarly attention, but it was not until 2020 that specialized research on its craftsmanship gradually increased. This trend in research development is clearly driven by the promotion of intangible cultural heritage protection policies. For instance, between 2010 and 2019, the Zhuang Maguhu Art was not only included in the list of intangible cultural heritage, but Huang Guangkuo (HGK) was also recognized as a provincial-level inheritor of the Maguhu art. Additionally, the Maguhu was included in the National Art Fund-supported project "Guangxi Characteristic Instrument Craftsmanship Talent Training.". These important measures have not only increased the social visibility of the Maguhu but also provided strong policy support and resource guarantees for its inheritance and development.

Table 1 Analysis of Research Findings on Craftsmanship and Improvements in Maguhu

Author(s)	Year	Methodology	Key Findings
Chen, K.P.	2007	Practical and Comparative Analysis	Instrument improvement is a fundamental basis for composition and heritage transmission.
Wang, L.	2020	Field Participation and Observation	The resonator is complex to manufacture, posing a key challenge in instrument improvement.
Yu, T.T.	2022	Field Observation	Instrument modification optimizes accessibility and performance effects.
	2022	Interview Investigation	Productive protection promotes heritage preservation and cultural sustainability.
Bi, X.J.	2022	Participatory Observation	Craftsmanship reflects the transmission and innovation of ethnic culture.

Source: Adapted from Chen (2007), Wang (2020), Yu (2022), & Bi (2022).

According to the research on "Craftsmanship and Improvements" (Table 1), they mainly focus on the observation and organization of instrument-making techniques (Chen, 2007; Wang, 2020; Yu, 2022). Scholars have explored the cultural significance of the Maguhu from the perspectives of craftsmanship techniques and ethnic cultural heritage. Notably, Chen (2007) paid more attention to the theoretical and practical aspects of Maguhu improvements, offering feasible ideas for its development. However, despite these studies providing a certain theoretical foundation, many specific issues remain unresolved. For example, how the craftsmanship of the Maguhu can adapt to modern musical demands while maintaining its traditional characteristics, and how to cultivate a new generation of craftsmen, etc.

2. Research Innovations

Overall, although the existing research on the Maguhu has a certain foundational and diverse nature, a key issue has not received enough attention: the cultural commonality between the Maguhu and the Erhu. This shared cultural origin is a critical dimension in musical instrument research and should not be overlooked. However, previous studies have largely treated the Maguhu as a distinct ethnic instrument of

the Zhuang people, focusing on ethnographic observations of its traditional craftsmanship rather than considering it within the broader context of Huqin culture and its artistic value.

In reality, the Maguhu shares significant historical, structural, and performance-related connections with the Erhu. From the perspective of material culture, its craftsmanship and modifications have been profoundly influenced by the Erhu. Although this viewpoint has not yet been widely discussed in academic circles, it provides an important new perspective for a deeper understanding of the cultural and artistic significance of the Maguhu. Therefore, this study combines field investigations of Maguhu craftsmanship with a comparative framework that includes the Erhu to deepen the understanding of the unique artistic and cultural value of the Maguhu within Zhuang traditions. This research not only enhances the understanding of Maguhu's unique artistic and cultural value within Zhuang traditions but also offers theoretical and practical insights for its preservation and innovation.

Conceptual Framework

The conceptual framework diagram of this paper illustrates the relationships and influence paths among various factors in the research on Maguhu craftsmanship improvement. External influencing factors include the influence of Erhu, modern manufacturing techniques, and cultural environment, which affect dependent variables through independent variables such as material selection, craftsmanship, structural design, cultural heritage, and performance requirements. This framework provides a theoretical basis for understanding the evolution of Maguhu craftsmanship, revealing the balance between technology and cultural heritage as well as their complex interactions (Figure 2).

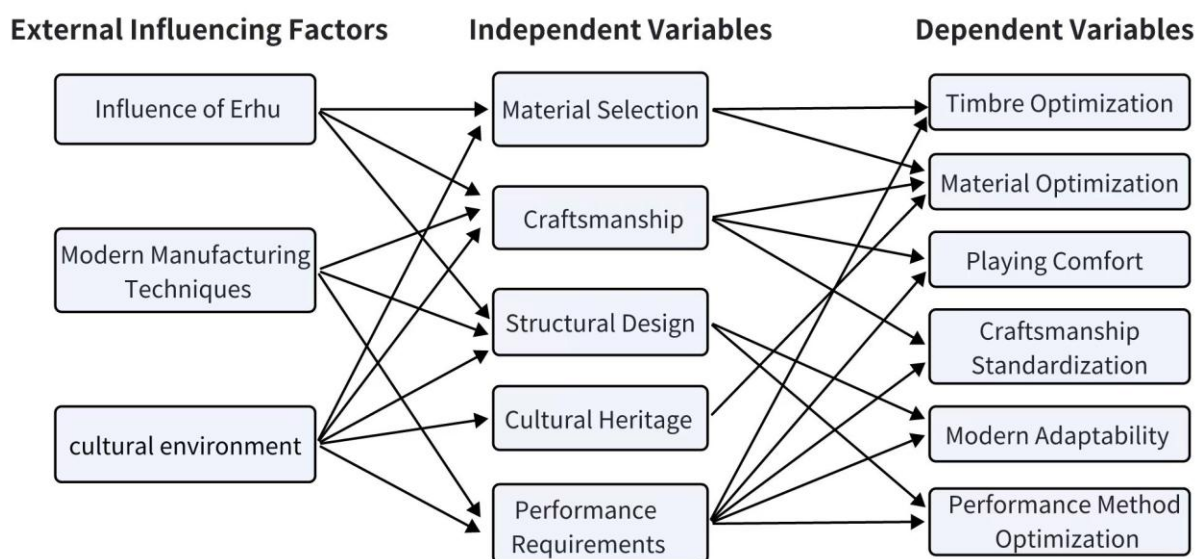


Figure 2 Conceptual Framework
Note: Constructed by the researcher

Methodology

This study employs a qualitative approach, utilizing ethnographic data collection and analysis to comprehensively examine the craftsmanship and stylistic characteristics of the traditional Maguhu among the Zhuang ethnic group. The research methods include case studies, interviews, and practice-based approaches. Additionally, reflective and comparative analysis methods are applied to examine the relationships between the Erhu and Maguhu, leading to conclusive insights.

The interview subjects primarily consist of recognized Maguhu experts with extensive experience in performance, teaching, research, or craftsmanship. Given that HGK is a representative inheritor of the



Zhuang "Intangible Cultural Heritage" Maguhu, the collection of research data and viewpoints mainly focuses on HGK, supplemented by other relevant Maguhu experts using a small-sample strategy. These experts have diverse social roles and industry backgrounds, ensuring the complementarity of sample information. Furthermore, considering the strong regional cultural characteristics of Maguhu music, despite its long history, its dissemination is limited and still considered "local knowledge.". Therefore, the geographical scope of this study is confined within the Guangxi Zhuang Autonomous Region, which not only aligns with the authentic distribution of Maguhu culture but also facilitates in-depth analysis.

1. Case Study Method

In the initial phase of the study, I collected phenomenological and processual data related to Maguhu craftsmanship through the case study method. For this purpose, I selected the Zhuang Maguhu inheritor HGK as a purposive sample and conducted multiple in-depth visits to his Maguhu-making workshop in Debao, Guangxi. I systematically investigated his material selection standards and craftsmanship improvement practices. For instance, I documented changes in the selection of wood, skin, and bone materials, along with their reasons and advantages, and sorted out the manufacturing steps and characteristics of key Maguhu components such as the fiddle neck, tuning pegs, fiddle head, resonator, snakeskin membrane, and fiddle rest. Through detailed observations of the material creation process, I aimed to achieve an in-depth understanding of traditional craftsmanship.

2. Interview Method

In the mid-stage of the research, I used semi-structured interviews to widely collect information related to instrument making and aesthetics, focusing particularly on their perspectives, philosophies, and evaluations. The interviews revolved around four themes: material selection, craftsmanship practices, cultural significance, and comparative analysis. They covered the selection criteria and preferences for wood, skin, and bone materials, the techniques and innovations in making various parts of the Maguhu, the role of Maguhu in Zhuang culture and its transmission, and insights into the similarities and differences in craftsmanship between the Maguhu and the Erhu.

The interviewed experts are proficient in both Erhu and Maguhu performance, well-versed in the structural and craftsmanship techniques of the Maguhu, and possess profound insights and rich practical experience regarding material selection and craftsmanship improvements. Their viewpoints hold considerable authority and guiding significance, and can be regarded as the "mainstream voice" in the current development of the Maguhu. The three Maguhu experts provide the most representative sample information from different perspectives, ensuring the objectivity and authenticity of the study (Table 2).

Table 2 Information on Interviewed Experts

Expert Code	Full Name	Social Role	Evaluation Focus
SSN	Prof. Su Shaning	Zhuang Ethnic Senior Professor, Scholar	Zhuang Instrument Culture
CKP	Prof. Chen Kunpeng	Zhuang Ethnic Senior Professor, Scholar	Huqin Performance and Refinement
HGK	Mr. Huang Guangkuo	Zhuang Folk Musician	Instrument Craftsmanship and Heritage

Source: Author Compilation (2024)

3. Practice-Based Approach and Comparative Analysis

In the later stage of the research, I employed a practice-based approach to compare, reflect upon, and refine the musical phenomena observed and studied in the earlier phases. Through this process, I identified the typical characteristics, intrinsic motivations, and influencing factors of Maguhu craftsmanship development. It is worth noting that the researcher's personal experience in Huqin practice and the multiple roles assumed during the study (Figure 3) provided a unique advantage in analyzing and interpreting the phenomena of Maguhu craftsmanship development from various dimensions.

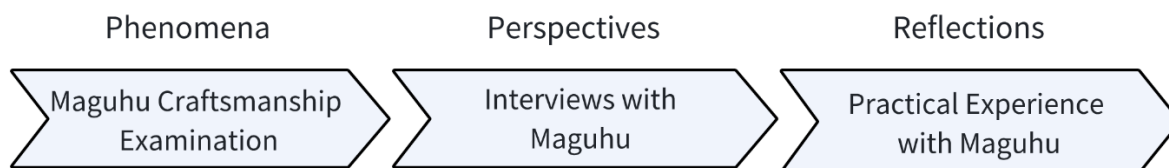


Figure 3 A crucial aspect of this research
Note: Constructed by the researcher

This multi-perspective research method enabled me to delve into how instrument makers integrate technical craftsmanship with aesthetic considerations, how individual adaptations and innovations are implemented, and how a balance is achieved between tradition and modernity, inheritance and innovation, as well as singularity and diversity.

Results

1. Key Stages and Critical Steps in Maguhu Craftsmanship

The craftsmanship of Maguhu consists of three major stages: material selection, manufacturing process, and fine-tuning, which collectively determine the sound quality and playing experience of the instrument. From a procedural perspective, the sequential crafting of Fiddle Neck, Tuning Pegs, Fiddle Head, Resonator, Snakeskin Membrane, and Fiddle Rest ensures the overall coherence and structural stability of the instrument. Figure 4 comprehensively illustrates the key elements and production process of Maguhu, as implemented by HGK.

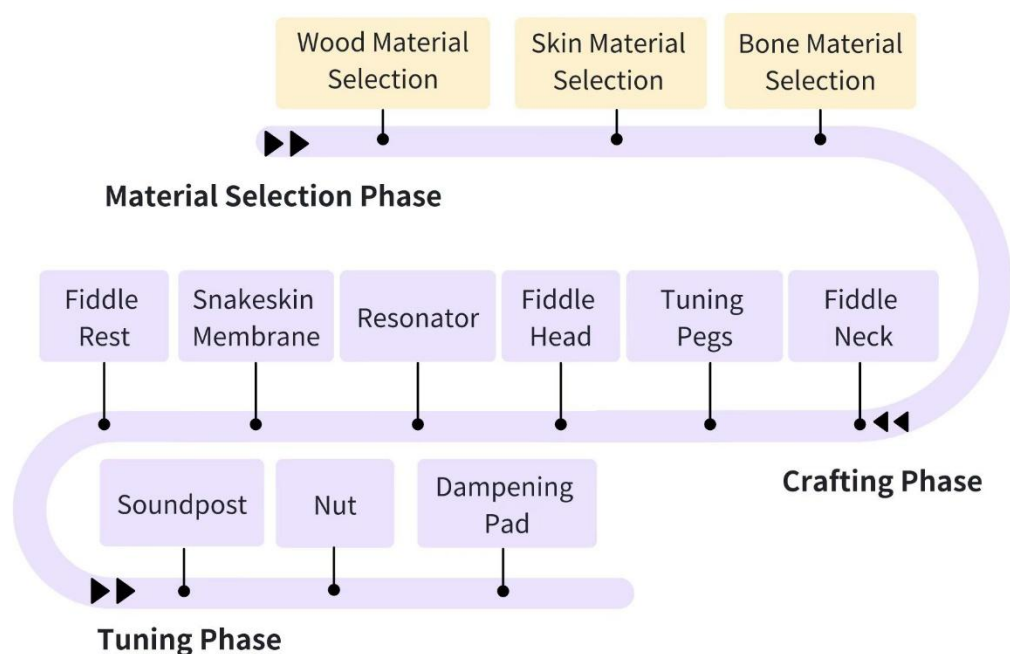


Figure 4 Investigation Process of Maguhu Craftsmanship
Note: Constructed by the researcher

In the process of Maguhu craftsmanship, material selection plays a crucial role, directly influencing the instrument's timbre and quality. The interviewee HGK emphasized that the core feature of Maguhu lies in its resonator, which is made from a horse's leg bone rather than traditional wood. He stated, "From an acoustical perspective, the vibration characteristics of horse bone are fundamentally different from those of wood. This unique attribute makes Maguhu distinct on a global scale." HGK further stressed that while

alternative materials such as cow bone and mule bone can temporarily address raw material shortages, horse bone remains the optimal choice for sound quality. He explained, “Horse bone has a naturally smooth and lustrous texture, with uniform thickness and excellent sound transmission. This makes it the best material for crafting high-quality Maguhu.” This distinctive material selection reflects the great emphasis on sound quality in Maguhu craftsmanship (Figure 5).



Figure 5 HGK Explaining the Resonator Craftsmanship
Note: Constructed by the researcher

Another interviewee, SSN, provided a cultural perspective on the unique relationship between Maguhu’s tone and its materials, arguing that it embodies both the primal nature of the instrument and its cultural significance. He stated, “The mystical timbre of Maguhu highlights its functional and ethnic value as a musical instrument.”

At the critical craftsmanship stages, including wood selection, skin membrane treatment, and Fiddle Head design, each step demands precise techniques and a deep understanding of acoustics. HGK criticized the lack of acoustic knowledge among some instrument makers, remarking, “Some craftsmen produce Maguhu with good sound quality purely by chance, relying on luck rather than expertise. This is not the right approach.” He emphasized that Maguhu craftsmanship requires not only technical mastery but also a thorough understanding of acoustics and playing characteristics. Particularly regarding the resonator, HGK stated, “Refinements to the interior surface of the resonator have made the timbre of Maguhu clearer and brighter.”

2. Evolution of Maguhu Craftsmanship and the Influence of Erhu

The craftsmanship of Maguhu is not only the physical foundation of its sound but also a carrier of rich ethnic craftsmanship and cultural values. Its development has been accompanied by continuous innovations in both material selection and craftsmanship techniques. Through in-depth observations and comparative analysis, Table 3 and Table 4 illustrate the evolution of Maguhu’s material selection and craftsmanship, while also revealing the influence of the Erhu on its development. The results are as follows:

Table 3 Material Changes and the Influence of Erhu

Material	Before	After	Reason for Change	Influence from Erhu
Wood	Low-grade Wood	Redwood	Performance Quality Needs	Direct Influence
Skin	Frog or Fish Skin	Python skin	Tone and Aesthetic Requirements	Indirect Influence
Bone	Local horse leg bone	Non-local horsebone	Local horsebone is scarce and inferior to non-local ones.	Unaffected, maintaining traditional individuality.



Table 4 Craftsmanship Changes and the Influence of Erhu

Material	Before	After	Reason for Change	Reason for Change
Fiddle Neck	Thin and cylindrical	elliptical shape	More Stable Vibration	Direct Influence
Tuning Pegs	Antelope Horn, Irregular	Wooden hexagon	Easy tuning and enhanced comfort	Direct Influence
Fiddle Head	Simple horse-head	Exquisite Lifelike Horse Head	Aesthetic needs	Unchanged, retaining original traits.
Resonator	Handcrafted and Rough	Semi-mechanized Polishing	Enhance resonance and purify tone.	Unaffected, only craftsmanship improved.
Snakeskin Membrane	Adhered and secured with fish glue	Specialized Skinning Process	Improve tone and volume.	Direct Influence
Fiddle Rest	None	Present	Enhanced playing comfort.	Direct Influence, Symbol of modernization.

Through further analysis of expert opinions, the significant changes observed in Maguhu craftsmanship were confirmed.

When analyzing the material changes of the Maguhu, it was found that both wood and skin materials have undergone significant evolution. SSN explained the reasons for this change in an interview: Early Maguhus were mostly made by amateur enthusiasts who typically used more primitive materials, such as miscellaneous wood and frog skin. The inherent limitations of these materials led to issues with the instrument, including a narrow range, insufficient volume, and unstable pitch. As the application scenarios of the Maguhu expanded and the repertoire became richer, along with the influence of the Erhu's superior material selection on the Maguhu, the material choices for the Maguhu gradually improved to redwood and python skin. This important improvement significantly enhanced the instrument's performance and tonal quality, and has been continued to the present day.

Interviewee CKP, particularly in the areas of Fiddle Neck length, string material improvements, and resonator craftsmanship. He noted, "The transition from silk strings to steel strings, the shift from soft bows to long, rigid bows, and the refined craftsmanship of the resonator's interior gradually transformed Maguhu's timbre from a coarse, husky sound to a bright and clear tone." These improvements not only enhanced Maguhu's sound quality but also expanded its tonal range, bringing it closer in specifications to the Erhu.

In actual craftsmanship practice, HGK extended the Fiddle Neck, increasing the number of playing positions from 2-3 to 4, aligning it with Erhu's length. He stated, "My Maguhu can now fit into a case designed for Erhu, with the same length specifications." This modification signifies Maguhu's transition towards standardized production, balancing traditional identity with modern musical demands.

Interviewees also shared insights into continuous refinements in Fiddle Head design. HGK He explained that four iterations of Fiddle Head design modifications were implemented, each aiming to blend traditional cultural elements with modern artistic concepts. "Before China's economic reform and opening-up, I traveled to Beijing, Shanghai, Guangzhou, and Suzhou to study the headstock designs of Erhu from four major state-owned instrument factories. This inspired my refinements in Maguhu's Fiddle Head." This continuous refinement process not only enhanced Maguhu's visual appeal but also deepened its cultural expression.

Additionally, the introduction of the Fiddle Rest marked another important evolution in Maguhu craftsmanship. HGK recalled, "Traditional Maguhu did not have a Fiddle Rest, requiring musicians to hold the instrument tightly between their knees, which caused physical tension. To improve playing comfort, I introduced the Fiddle Rest, effectively solving this issue." This modification optimized the playing experience while also reflecting the influence of Erhu craftsmanship on Maguhu's evolution.

In summary, Maguhu craftsmanship has gradually aligned with the modernized production methods of the Erhu. Modifications in Fiddle Neck length, string material, resonator design, Fiddle Head structure, and the introduction of the Fiddle Rest all demonstrate Maguhu's adaptation of Erhu's craftsmanship techniques. These refinements have improved sound quality and playing comfort, fostering technological innovation in Maguhu production while still preserving its distinct ethnic identity. The research indicates that Erhu's standardization process has provided a valuable technical reference for Maguhu, enabling it to achieve a harmonious balance between traditional heritage and modern functionality.

3. Adaptive Mechanisms in Maguhu Craftsmanship Development

The development of Maguhu craftsmanship represents a continuous adjustment, adaptation, and innovation between traditional inheritance and modern advancements, aimed at shaping its distinct artistic identity.

In terms of instrument-making philosophy, Maguhu has increasingly moved towards instrumentalization. HGK emphasized the need to balance timbre, aesthetics, and functionality, stating, "Sound quality, tonal clarity, and volume should always come first, followed by visual appeal." He further advocated for the use of mechanized tools for precise finishing, ensuring resonance quality and tonal purity. These perspectives indicate that functionality remains the priority in the preservation and modernization of Maguhu, with technological refinements serving to enhance its acoustic performance. His assertion, "A musical instrument is about acoustics; it must be based on science," challenges the traditional, often unstructured craftsmanship of folk Maguhu makers and reinforces his longstanding commitment to craftsmanship improvement. However, as Maguhu continues to incorporate elements of Erhu's structure, materials, and functionality, it is also transitioning towards becoming a professional instrument with enhanced performance capabilities and refined aesthetics.

Despite these innovations, Maguhu has maintained its unique ethnic characteristics. The wave of ethnic instrument reform has provided opportunities for modern innovation, but it has also led to instrumental functional expansion. HGK shared his experiences in experimenting with modifications, stating, "I developed high, medium, and low-pitched versions of Maguhu, allowing it to serve a broader role in ethnic orchestras." This innovation not only diversified Maguhu's range but also expanded its applicability in modern music settings. He further elaborated, "The series of Maguhu instruments I developed—high-pitched, sub-high-pitched, medium-pitched, and low-pitched—each has distinct characteristics."

However, not all innovations were equally successful. SSN critiqued the development of the medium-pitched Maguhu, arguing, "The rationale behind introducing this instrument was to preserve its characteristic tone. However, after modification, it no longer retains that original sound." This highlights the importance of preserving traditional identity in instrument innovation. CKP observed that the high, medium, and low-pitched Maguhu series may have been inspired by Jinghu and Jing Erhu in Peking opera, but ultimately, "the high-pitched and sub-high-pitched versions gained wider acceptance and usage." This demonstrates that ethnic instruments evolve under the influence of external cultural forms while also underscoring the need for cultural adaptability and practicality in modernization efforts.

Discussion

1. Interpretation of Findings

The research findings indicate that the modernization of the Maguhu is not merely a matter of craftsmanship improvement but a dynamic adaptation model influenced by various external factors. Its development is not just a technical upgrade but an adjustment in material selection, craftsmanship techniques, and aesthetic features to balance traditional characteristics with modern performance demands.

Firstly, the craftsmanship of the Magu exhibits a dual trend of material optimization and technical refinement. The materials used in the instruments have gradually evolved towards enhancing sound quality, and production techniques have become more refined to improve timbre stability and playability. Although modern technology has facilitated a degree of standardization, key production stages of the Maguhu still rely on the manual skills of inheritors. For instance, some manufacturers, despite using modern tools, high-quality materials, rigorous methods, and exquisite craftsmanship, their products are not fully accepted by folk artists and troupes (Wang et al, 2024). Previous studies have not revealed the fundamental reasons for the gap between modern social aesthetics and the recognition of folk artists, while this study, through comprehensive comparison and analysis of key production stages, has clarified the causes of this gap. Therefore, the innovation of ethnic musical instruments is not a simple industrialization process but an



adaptive strategy that balances technological progress with traditional craftsmanship. Chen (2007) suggests that the improvement of ethnic musical instruments should focus on the combination of traditional skills and modern needs, which echoes the findings of this study.

Secondly, the standardization of the Erhu has provided a technical framework for the improvement of the Maguhu, but this influence is selective and adaptive rather than direct replication. For example, the Maguhu has adopted the advancements of the Erhu in resonator design and fiddle neck length, yet it has maintained its unique materials and structural characteristics. This adaptive adjustment strategy indicates that during the craftsmanship refinement process, the Maguhu has not simply followed the production norms of the Erhu but has developed a dual approach that integrates standardization with individualization. Chen (2007) pointed out that, while retaining the basic shape and tonal and timbral characteristics of the Maguhu, efforts should focus on exploring potential from materials and craftsmanship to address issues related to volume, sound quality, and range, while also highlighting its unique tonal and timbral features. This perspective, although confirming the applicability of the dual-path approach in this study, lacks the comparative perspective of the Erhu, affecting the depth of its analysis. The findings of this study will provide a reference for the analysis of future instrument improvement practices.

Furthermore, the improvement process of the Maguhu involves not only technical enhancement but also cultural adaptability and aesthetic considerations. The study shows that design modifications and tonal adjustments align with contemporary aesthetics while preserving ethnic characteristics and cultural value. This is particularly evident in the analysis of HGK's craftsmanship. HGK's continuous refinement and optimization of Maguhu's fiddle head fully reflect the constant refinement of artistic aesthetic core elements by Maguhu artisans. At the same time, HGK's adherence to the selection of materials for the resonator, insisting on using horse leg bones to shape the unique timbre of the traditional Maguhu, this inheritance of traditional timbre not only retains the cultural characteristics of the Maguhu but also lays the foundation for its application in modern music. This evolutionary model shows that the modernization of the Maguhu is not merely a technical enhancement but a fusion of technical optimization and cultural heritage, ensuring that it meets the needs of contemporary musicians while preserving its unique cultural continuity.

Lastly, the evolution of the Maguhu is also influenced by cultural identity, performance traditions, and external musical demands. In the context of modern ethnic instrumental music development, HGK has improved the newly designed high-pitched, sub-high-pitched, and medium-pitched Maguhus. Although these improvements cater to the needs of modern society, the actual effects are not ideal, as the improvement process has neglected the feelings of users. Interviews with CKP and SSN in the study indicate that they have raised critical opinions on the newly designed Maguhus, indicating that some improvements have not fully met the needs and usage habits of the folk, leading to a disconnection with the public. These observations provide an important direction for reflection on instrument improvement. Therefore, the impact of the external environment on the improvement of the Maguhu remains positive, as it not only broadens the functionality of the instrument but also helps deepen the connotation of the instrument's value.

2. Research Contributions and Limitations

This study provides theoretical support and empirical references for the modernization of ethnic musical instruments and the inheritance of intangible cultural heritage skills. Through field research, it systematically organizes and analyzes the core elements and evolutionary characteristics of Maguhu craftsmanship, revealing its patterns of inheritance and strategies for modern adaptation. The study not only deepens the understanding of the protection and improvement of ethnic musical craftsmanship but also offers insights into its application within contemporary musical systems, thereby broadening the perspective of research on ethnic musical instruments. Unlike previous studies that primarily employed field research methods (Wang, 2020; Yu, 2022), this study incorporates various roles of Maguhu makers, performers, and scholars into the analytical framework, capturing both consistencies and discrepancies in their understanding. Combined with in-depth participatory observation, this multi-perspective approach not only aids in cross-verifying viewpoints but also facilitates a deeper comprehension of musical phenomena. Practice has proven that the comprehensive observational perspective of this study is crucial for an objective and in-depth analysis of Maguhu instrument craftsmanship improvement.

This study examines the evolutionary mechanisms of the Maguhu from the perspective of the Huqin family, expanding the theoretical framework of research on ethnic musical instruments. By employing multidimensional comparative methods, it systematically analyzes the relationships between the Maguhu and other Huqin instruments, for the first time using the Erhu as a central reference to explore their similarities and differences in craftsmanship, structure, and timbre. Through comparison, it further reveals



the logic of Maguhu's craftsmanship evolution, deepening the understanding of its craft characteristics and developmental mechanisms. Although scholars generally recognize the historical connection between the Erhu and the Maguhu, actual research has not further integrated this into the analysis of the Maguhu. Therefore, the concept of studying the Maguhu within the context of the Huqin proposed in this study, as a significant theoretical innovation, provides a new dimension for research on ethnic musical instruments.

Despite providing valuable insights into the craftsmanship of the Maguhu and its cultural significance, this study also has some limitations. The geographical scope of the study is mainly concentrated in the Guangxi Zhuang Autonomous Region, which, while helping to ensure the cultural authenticity of the research, may limit the universal applicability of the findings. Future research can explore the diversity and commonality of the Maguhu in different cultural contexts by expanding the geographical scope to include a broader range of areas, which may bring new insights.

Additionally, the sample of this study is mainly composed of a few experts, which may affect the comprehensiveness of the results. Increasing the diversity of practitioner samples, especially incorporating more feedback from Maguhu users and performers, will help to fully understand the views of different groups on the craftsmanship and timbre of the Maguhu. Adopting a cross-regional and cross-group perspective will deepen our understanding of the association between musical instruments and social culture and expand the potential research space.

Conclusion

This study provides an in-depth analysis of the craftsmanship of the Maguhu, demonstrating how it maintains and enhances its cultural value amidst modernization. The findings reveal that the evolution of the Maguhu in material selection and structural design reflects the pursuit of sound quality and durability, as well as the integration of Zhuang cultural traditions with modern aesthetics. The influence of the Erhu on the Maguhu's improvement has been significant, propelling its transformation into a solo instrument. This research emphasizes the importance of seeking a balance between tradition and modernity for the Maguhu.

1. Traditional and Cultural Value in Maguhu Craftsmanship

The study conducted an in-depth analysis of the traditional craftsmanship of the Maguhu, revealing how it preserves and strengthens its cultural value during the modernization process.

The material selection of the Maguhu has transformed from singular to diverse choices, evolving from early local materials to modern nanmu and rosewood. This change not only shows respect for traditional craftsmanship and innovation but also reflects the fusion of Zhuang cultural traditions with modern aesthetic standards. The evolution of skin materials documents the changes in the Zhuang people's aesthetic preferences for materials, reflecting the trend towards instrumentalization of the Maguhu in modern times, meeting the needs for better instrument vibration and tonal expression. The unique choice of horse bone as the resonator material for the Maguhu not only endows the instrument with a distinctive timbre but also demonstrates respect for and preservation of ethnic traditions. HGK's understanding of the tonal differences between horse bone and cow bone further emphasizes the importance of material selection for the final tonal performance of the instrument.

These changes fully demonstrate the dual role of material selection in enhancing the quality of the instrument and its cultural expression, reflecting the efforts of the Maguhu to seek balance between tradition and modernity.

2. Influence of Erhu on Maguhu Improvement and Balance of Tradition and Modernity

The study reveals the significant influence of the Erhu on the craftsmanship improvement of the Maguhu. Through comparative analysis, it is found that the Maguhu has gradually converged with the Erhu in structure, material, and function, a process that is not merely imitative but adaptive, maintaining the unique ethnic characteristics of the Maguhu while absorbing the technological advantages of the Erhu. This bidirectional interaction reflects the adaptability and innovation of ethnic instruments in adapting to modern musical demands.

The improvement process of the Maguhu shows a balance between tradition and modernity. Despite significant changes in materials and design, such as the shift from miscellaneous wood to rosewood and the addition of a fiddle rest, these changes have not diminished the cultural value of the Maguhu. On the contrary, they have enhanced the instrument's performance capabilities, making it better suited to the modern musical environment while preserving its significance as a symbol of Zhuang culture.



The development process of the Maguhu proves the importance of cultural adaptability in the evolution of musical instruments. While drawing on the advanced craftsmanship techniques of the Erhu, Maguhu makers ensure that the instrument's cultural attributes and performance characteristics are retained.

This strategy not only enhances the artistic expressiveness of the Maguhu but also secures its core position in the Zhuang musical tradition. The case of the Maguhu provides valuable experience and insights for the modernization of other ethnic instruments, demonstrating how to maintain cultural uniqueness and vitality in the context of globalization.

Overall, the process of making and improving the Maguhu integrates traditional craftsmanship with modern technology, reflecting the high standards of the Zhuang culture in terms of sound quality and aesthetics. This process, though challenging, offers insights into how to preserve traditional characteristics in innovation. While pursuing modernization, the Maguhu must maintain its unique ethnic characteristics and cultural values to achieve a harmonious coexistence of tradition and modernity. This study provides valuable guidance for the modernization of the Maguhu and other ethnic musical instruments.

Recommendation

1. Establishing Systematic Inheritance and Promotion Mechanisms

This study reveals the marginalization risks faced by the Maguhu, particularly due to the aging of craftsmen, leading to potential loss of skills. To address this challenge, it is recommended to establish a systematic inheritance mechanism, including a three-tiered system of senior, middle-aged, and young inheritors, ensuring the continuation and development of the craft. Furthermore, given the relatively limited audience of the Maguhu, it is suggested to mobilize government, cultural institutions, and all sectors of society to increase the social awareness of the Maguhu through diverse communication channels, enhancing its cultural value and social influence as an ethnic craft. Specific measures include organizing instrument popularization lectures in schools, museum hands-on experiences, digital media exhibitions showcasing craftsmanship techniques, and Zhuang cultural tourism product promotions, to attract a broader audience to understand and engage with the Maguhu.

2. Promoting the Modernization and Continuous Improvement of the Maguhu

The study indicates that the Erhu has a profound influence on the Maguhu's craftsmanship improvement. The future challenge lies in how to transform these influences into a driving force for future development and maintain the unique style of the Maguhu amidst innovation. It is recommended to adopt a more open perspective in implementing the improvement practices of Maguhu making, not limited to makers or performers, but also involving a broader range of societal forces or expert groups. For instance, inviting more Erhu craftsmen to join the Maguhu R&D team can prevent blind exploration in practice and incorporate feedback from more societal forces or expert groups to refine the Maguhu and further expand its applicability in modern society.

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