

Article

Cross-Cultural Resonance: Practice-Based Artistic Research on Guzheng–Harp Collaboration and Listener Experience

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Abstract: Music therapy has developed into an interdisciplinary field linking musicology, psychology, and health research. While many studies have examined the emotional and cognitive effects of music listening, relatively little attention has been given to the acoustic interaction of specific instruments in cross-cultural performance contexts. This study investigates the interaction between the Chinese guzheng and the Western concert harp through a practice-based artistic research approach. Between 2023 and 2025, the research team composed five works for guzheng and harp (Morning Light, Cherry Blossoms, Cloud Dance, Raindrops, and The Field), exploring timbral resonance, pentatonic melodic structures, and evolving harmonic textures. These works incorporated harp techniques such as bisbigliando, *près de la table*, whistle effects, and *pincé* articulation alongside expressive guzheng techniques including vibrato, pitch bending, and glissando. Performances in China and Poland in 2025 generated observational data through performer reflection and audience feedback. Listeners frequently described the combined guzheng–harp sound as transparent, spatially resonant, and immersive. The findings suggest that the interaction of guzheng melodic expressivity and harp resonance can create a distinctive sonic environment that encourages attentive listening and aesthetic engagement, highlighting the potential of cross-cultural plucked-string collaboration for future interdisciplinary research on music and wellbeing.

Keywords: music therapy; practice-based research; guzheng; harp; cross-cultural music; music and wellbeing

1. Introduction

Over the past several decades, music therapy has developed into a rapidly expanding interdisciplinary field that integrates perspectives from musicology, psychology, neuroscience, and healthcare research. Scholars have increasingly investigated how musical experiences influence emotional regulation, cognitive functioning, and subjective wellbeing.

Within this field, music is often understood not only as an aesthetic phenomenon but also as a complex auditory stimulus capable of shaping psychological states and social interaction (Koelsch, 2014; Juslin & Sloboda, 2010).

A growing body of research has demonstrated that musical engagement can influence emotional responses and attentional processes across a variety of listening contexts. Rather than reviewing this literature in detail here, the following section summarizes key findings from music psychology and music therapy research that inform the present study. Studies in music psychology have shown that listeners frequently experience a wide range of affective states while engaging with music, including pleasure, nostalgia, tension, and aesthetic awe (Juslin & Västfjäll, 2008). Neuroscientific research further suggests that music listening can activate brain regions associated with reward processing, emotional evaluation, and memory formation. For example, neuroimaging studies have shown that emotionally powerful musical passages may trigger activity in neural systems related to dopamine release and reward anticipation (Salimpoor, Benovoy, Larcher, Dagher, & Zatorre, 2011). In recent years, increasing attention has been paid to the localization of music therapy practices in non-Western cultural contexts. For example, Su, Hu, Zhan, and Ye (2025) propose a culturally grounded therapeutic framework integrating traditional Chinese plucked string instruments such as the guzheng and pipa with psychological and medical theories. Their “instrument–music–method–context” model highlights how timbre, performance technique, and cultural symbolism jointly contribute to emotional regulation and wellbeing outcomes. Such research underscores the importance of culturally specific instrumental practices in shaping therapeutic listening experiences.

Despite these developments, much of the existing literature has focused primarily on general listening experiments, vocal interaction, or keyboard-based therapeutic interventions (Bradt & Dileo, 2014; Thaut, 2005; Magee & Stewart, 2015). Comparatively, fewer studies have explicitly examined how the interaction between specific instrumental timbres shapes listener perception in live performance contexts, particularly in cross-cultural settings (Clarke, 2005; Godøy & Leman, 2010; Tan, Pfordresher, & Harré, 2010; Schiavio & Høffding, 2015). In particular, relatively few studies have systematically explored how the interaction between different instrumental timbres contributes to listener experience in cross-cultural performance environments (Tan, Pfordresher, & Harré, 2010; Schiavio & Høffding, 2015). Among the diverse families of musical instruments, plucked string instruments occupy a distinctive position due to their characteristic acoustic properties, including rapid attack transients and complex overtone decay patterns (Fletcher & Rossing, 1998; Roads, 1996). Instruments such as the harp, guitar, and various zither-type instruments produce a sound structure characterized by a clear initial attack followed by gradually decaying resonance. This acoustic pattern generates complex overtone interactions that may contribute to a perceptually expansive sonic environment, as overlapping resonance and reverberation have been shown to influence spatial hearing and auditory scene perception (Blessner & Salter, 2007), encouraging listeners to attend to subtle variations in resonance and timbral color.

In Western musical contexts, the concert harp has often been associated with transparent sonic textures and extended harmonic resonance. Because of these qualities, harp performance has occasionally been incorporated into hospital or hospice environments as part of supportive musical care practices. In East Asian musical traditions, instruments such as the guzheng have long been valued for their expressive melodic flexibility and distinctive timbral nuance. The guzheng’s performance techniques—including vibrato, glissando, and pitch bending—allow performers to shape pitch and tone color in ways that contribute to a highly expressive melodic style.

Although these instruments originate from different musical traditions, they share several acoustic characteristics, including wide pitch ranges, resonant plucked tones, and rich overtone spectra. These shared sonic features make the guzheng and harp particularly suitable for collaborative performance contexts that explore cross-cultural musical interaction.

In recent years, cross-cultural musical collaboration has become increasingly common in contemporary performance practice. Such collaborations not only expand artistic possibilities but also provide valuable opportunities for examining how listeners perceive hybrid sonic environments that combine elements from different musical traditions, a process often discussed in relation to cultural hybridity and cross-cultural meaning-making in music (Bhabha, 1994; Wong, 2004). When instruments associated with distinct cultural contexts are brought together within a single musical texture, listeners encounter unfamiliar combinations of timbre, melody, and harmonic structure.

The present study therefore investigates the interaction between guzheng and harp through a practice-based artistic research approach. Rather than attempting to establish biomedical therapeutic mechanisms linking specific sound frequencies to physiological responses, the study focuses on how musical structure and instrumental timbre may shape listener perception in contexts associated with musical wellbeing.

Since 2023, the research team has engaged in a series of compositional and performance experiments exploring the interaction between these two instruments. Five collaborative works were created for the project—Morning Light, Cherry Blossoms, Cloud Dance, Raindrops, and The Field. These compositions were designed to integrate the acoustic characteristics and performance techniques of both instruments while maintaining elements of their respective musical traditions.

Particular attention was given to harp techniques that shape resonance and articulation, including bisbigliando tremolo, *près de la table* articulation, whistle effects, and *pincé* plucking gestures. These techniques were combined with expressive guzheng performance methods such as vibrato, glissando, and pitch bending. The compositions were performed in concert settings in China and Poland in 2025, providing opportunities to observe audience responses to the combined instrumental sound.

In this study, the concept of “resonance” is understood both in an acoustic and metaphorical sense. Acoustically, resonance refers to the interaction of overtone structures produced by plucked strings and the way these overlapping vibrations shape the perceived spatial qualities of sound. Metaphorically, resonance also describes the perceptual and cultural interaction that occurs when listeners encounter musical elements originating from different traditions within a shared sonic environment. The guzheng–harp collaboration explored in this study therefore provides an opportunity to investigate resonance not only as a physical acoustic phenomenon but also as an experiential dimension of cross-cultural listening.

This study addresses this gap by examining the interaction between guzheng and harp through a practice-based artistic research framework combined with structured qualitative observation. Rather than treating musical experience as an abstract stimulus, the study situates listening within a live, culturally hybrid performance environment.

The research contributes to the field in three ways:

- (1) it provides a timbral analysis of cross-cultural plucked-string interaction,
- (2) it develops a methodological model integrating artistic practice and qualitative inquiry, and
- (3) it offers empirically grounded insights into listener perception in hybrid acoustic environments.

In doing so, the study advances current interdisciplinary discussions at the intersection of music therapy, ethnomusicology, and music cognition, emphasizing the role of acoustic structure, cultural context, and perceptual engagement in shaping musical wellbeing.

2. Literature Review

2.1 Music, Emotion, and Wellbeing

A substantial body of research has explored the relationship between music listening and emotional processing. Music psychology studies have demonstrated that musical experiences can evoke a wide range of emotional responses including pleasure, nostalgia, tension, and aesthetic awe (Juslin & Västfjäll, 2008).

Neuroscientific research further suggests that music listening can engage brain systems associated with reward, emotion, and memory. For example, neuroimaging studies have shown that emotionally powerful musical passages may trigger dopamine release in brain regions involved in reward processing (Salimpoor et al., 2011).

Koelsch (2014) argues that music engages multiple neural networks simultaneously, including systems related to emotional evaluation, autonomic regulation, and social cognition. Clinical research in music therapy has also examined the therapeutic application of music in medical contexts. For example, systematic reviews have reported that music interventions may contribute to stress and anxiety reduction in patients with cardiovascular conditions (Bradt & Dileo, 2014). In addition, research in neurologic music therapy highlights the role of rhythm and auditory stimulation in influencing motor coordination and cognitive processing (Thaut, 2005).

However, scholars also emphasize that emotional responses to music cannot be explained solely through physiological mechanisms.

Instead, musical emotion often arises from a complex interaction of acoustic features, cultural familiarity, personal memory, and contextual interpretation (Huron, 2006; Juslin & Sloboda, 2010).

Recent interdisciplinary scholarship has increasingly emphasized the importance of understanding music-related wellbeing not only through clinical intervention but also through everyday musical experience. Researchers have argued that musical engagement may influence psychological states through a variety of perceptual and cognitive mechanisms, including attentional focus, emotional association, and aesthetic immersion (MacDonald, Kreutz, & Mitchell, 2012).

In this perspective, music is not treated solely as a therapeutic tool but also as a cultural practice capable of shaping subjective experiences of relaxation, reflection, and emotional regulation. Listening environments characterized by slow tempo, stable harmonic structures, and sustained resonance have frequently been associated with contemplative listening experiences.

Scholars in music psychology have also highlighted the role of expectation and predictability in shaping emotional responses to music. According to Huron (2006), listeners continuously form expectations about musical events based on prior listening experience. When musical structures unfold in ways that are both predictable and subtly varied, listeners may experience a balance between familiarity and novelty that sustains attention and emotional engagement.

From an ethnomusicological perspective, musical meaning is deeply embedded in cultural listening frameworks. Different musical traditions cultivate distinct listening habits and aesthetic expectations. For example, Chinese instrumental traditions often emphasize

subtle expressive nuance and flexible melodic phrasing, while Western classical traditions frequently emphasize harmonic development and structural modulation.

When instruments from these traditions are combined within a single musical environment, listeners may encounter unfamiliar combinations of musical cues. Such hybrid sonic environments can stimulate heightened attention as listeners attempt to interpret the relationship between different musical systems.

This perspective suggests that cross-cultural musical collaboration may offer a particularly fruitful context for exploring how acoustic structures and cultural interpretation interact in shaping listener experience. Recent neuroscientific studies focusing on traditional instrumental practice further support this perspective. For instance, Zhao, Lai, Lü, Zhao, and Qi (2025) demonstrate that sustained guzheng training in children with autism spectrum conditions can significantly alter EEG patterns, including increased alpha power and reduced theta activity, suggesting improved neural regulation and cognitive integration. These findings provide physiological evidence that instrumental performance may influence both emotional and neural processes.

2.2 Plucked String Instruments in Musical Wellbeing Contexts

In addition to emotional and cognitive effects, music therapy research has also explored the role of instrumental performance in motor rehabilitation. For example, Wan, Lu, and Zhang (2024) applied Therapeutic Instrumental Music Performance (TIMP) in children with cerebral palsy and reported significant improvements in fine motor coordination, hand-eye integration, and movement control. Such findings suggest that structured instrumental interaction can function as both a perceptual and motor training system, further reinforcing the interdisciplinary relevance of musical practice.

Although many music therapy studies focus on vocal interaction or keyboard instruments, plucked string instruments have also played a role in musical environments associated with relaxation and contemplative listening.

The harp, in particular, has frequently been described as producing a resonant and transparent sonic texture that listeners often perceive as calming. As a result, harp performance has occasionally been incorporated into hospital or hospice environments as part of supportive musical care practices. Research on music and wellbeing suggests that slow tempo structures, sustained resonance, and predictable harmonic patterns may contribute to listener perceptions of calmness and attentional stability (MacDonald, Kreutz, & Mitchell, 2012).

Similarly, traditional instruments such as the guzheng have been increasingly integrated into culturally contextualized music therapy practices in East Asia. Empirical studies suggest that their timbral characteristics and performance techniques may support emotional regulation and cognitive engagement within culturally familiar frameworks (Su et al., 2025; Zhao et al., 2025). Despite these developments, comparative research examining Eastern and Western plucked instruments within shared performance environments remains relatively scarce. Research on harp use in therapeutic and clinical environments has been discussed in studies of environmental music and healing soundscapes (Aldridge, 1996; Wigram, 2002).

In addition to timbral and cultural factors, the internal harmonic language of the harp itself plays a crucial role in shaping its perceived therapeutic qualities. From a performance-based and acoustical perspective, harp music frequently relies on consonant harmonic structures that align closely with the natural overtone series. Intervals such as perfect fifths, octaves, and triadic formations (major and minor chords) produce stable and

acoustically coherent sound patterns, which listeners often perceive as balanced, pure, and psychologically grounding.

Such consonant harmonic frameworks may function as auditory anchors, supporting emotional stabilization and reducing anxiety by providing predictable and non-conflicting sonic environments, consistent with theoretical accounts linking consonance to perceptual stability and affective response (Meyer, 1956; Huron, 2006). In performance practice, these effects are often realized through sustained arpeggiation, low-register open fifths, and flowing broken-chord textures that create a continuous and enveloping sound field.

At the same time, dissonant harmonic elements—including seventh chords, diminished structures, and intervallic tensions—may serve a complementary expressive function. Rather than disrupting the listening experience, controlled dissonance introduces moments of tension that can facilitate emotional release when resolved into consonant harmony. This “tension–resolution” dynamic has been discussed in both music theory and music psychology as a fundamental mechanism underlying emotional engagement in musical listening (Meyer, 1956; Huron, 2006).

Importantly, the plucked nature of the harp softens the perceptual intensity of dissonance due to the natural decay of string vibration, allowing for a more subtle and controlled application of harmonic tension compared to sustained instruments. As a result, harp-based harmonic progression can support a dynamic emotional trajectory, guiding listeners through phases of relaxation, activation, and resolution within a continuous auditory flow.

These harmonic characteristics suggest that the therapeutic potential of harp performance is not only a function of timbre, but also of structured harmonic movement, which may shape listener perception in ways that align with broader concepts of musical wellbeing. Taken together, these studies suggest that plucked string instruments may contribute to musical wellbeing through a combination of timbral resonance, harmonic structure, and culturally situated listening practices, highlighting the need for further comparative research across instrumental traditions.

2.3 Acoustic and Cultural Characteristics of Guzheng and Harp

From an organological perspective, the guzheng and harp belong to different structural categories within the family of plucked string instruments. The guzheng is a long zither instrument with movable bridges that allow performers to modify pitch and timbre through finger pressure and string manipulation. Techniques such as vibrato, glissando, and pitch bending contribute to the expressive character of the instrument.

The concert harp, by contrast, uses a pedal mechanism that allows performers to shift pitch classes rapidly, enabling complex harmonic structures and modulations. Despite these structural differences, both instruments generate rich overtone spectra that contribute to their distinctive sonic qualities. Plucked strings typically produce a rapid initial attack followed by gradually decaying resonance. This acoustic structure creates a layered sound field in which individual tones interact through overlapping harmonics. Such timbral characteristics may encourage listeners to focus on subtle sonic details and evolving resonance patterns.

At the same time, the cultural meanings associated with these instruments shape how listeners interpret their sound. The guzheng is often associated with Chinese musical aesthetics emphasizing poetic imagery and expressive nuance. The harp, in contrast, is closely connected with Western classical and sacred musical traditions.

While previous research has examined the emotional and perceptual effects of musical sound, most studies have focused on general listening stimuli or isolated musical parameters such as tempo, rhythm, or harmony. Comparatively fewer studies have systematically

explored how the interaction between specific instrumental timbres may influence listener perception in live performance contexts, particularly within cross-cultural performance settings (Clarke, 2005; Tan, Pfordresher, & Harré, 2010; Schiavio & Høffding, 2015). In particular, cross-cultural collaborations involving instruments from different musical traditions remain relatively underrepresented in empirical and practice-based research. This gap suggests the importance of examining how distinctive instrumental sound qualities interact within shared musical environments and how such interactions may shape aesthetic listening experiences. From an organological and acoustical perspective, these differences have been discussed in studies of string vibration and resonance (Fletcher & Rossing, 1998), while cross-cultural interpretations of instrumental sound are addressed in ethnomusicological research (Nettl, 2005; Wong, 2004).

3. Methodology

3.1 Research Design

The present study adopts a practice-based artistic research methodology, an approach increasingly used in musicology, artistic research, and performance studies. Practice-based research recognizes artistic practice as a legitimate form of knowledge production in which creative processes function simultaneously as both subject and method of investigation (Barrett & Bolt, 2010; Aigen, 2013). Within this framework, musical composition and performance serve as exploratory tools for examining aesthetic, acoustic, and cultural interactions between instruments.

Rather than attempting to establish biomedical therapeutic mechanisms, the research investigates how cross-cultural instrumental collaboration may shape listener perception in musical environments associated with wellbeing. The study therefore focuses on three musical dimensions: timbral interaction between guzheng and harp, melodic and harmonic organization in cross-cultural composition, and temporal pacing and repetition as perceptual structures influencing listening attention. These dimensions were selected based on existing research in music psychology suggesting that tempo, timbre, and structural predictability can influence emotional engagement during music listening (Huron, 2006; Juslin & Sloboda, 2010).

In this sense, the artistic process itself functioned as a methodological tool, enabling the exploration of timbral interaction and listener perception through iterative compositional and performance practice.

3.2 Artistic Research Context

The research was conducted between 2023 and 2025 as part of a collaborative artistic project exploring cross-cultural interaction between Chinese and Western plucked string instruments. During this period, the research team composed five ensemble works for guzheng and harp: *Morning Light*, *Cherry Blossoms*, *Cloud Dance*, *Raindrops*, and *The Field*. Each composition was designed to explore the acoustic interaction between the two instruments while maintaining the stylistic identity of both musical traditions.

Particular attention was given to harp techniques that influence timbral resonance and articulation, including *bisbigliando tremolo*, *près de la table* articulation, whistle effects, and *pincé* plucking. These techniques were integrated with expressive guzheng performance devices such as vibrato, glissando, and pitch bending. The compositions were performed in concert settings in China and Poland in 2025, allowing the research team to observe audience responses across different cultural contexts.

3.3 Data Collection

Data collection was conducted across four live performances held in China and Poland between May and October 2025. The total audience size across these events was approximately 120–150 listeners, with diverse backgrounds including music students, professional musicians, and general concert audiences.

The audience sample included approximately:

- 40% participants with formal musical training
- 30% students without professional music background
- 30% general audience members

In terms of cultural background, performances in China and Poland provided a mixed audience context, allowing preliminary observation of cross-cultural reception patterns.

Audience feedback was collected using a mixed qualitative approach:

- Short written questionnaires distributed immediately after performances (n ≈ 40 valid responses)
- Informal semi-structured post-concert discussions
- Field notes documenting spontaneous audience reactions

The questionnaire included open-ended prompts such as:

- “How would you describe the overall sound atmosphere?”
- “Did the combination of instruments evoke particular emotions or images?”

Performer reflections were documented through structured rehearsal journals, focusing on:

- Timbral balance
- Interaction between instruments
- Perceived audience engagement

Data analysis followed a thematic analysis approach as outlined by Braun and Clarke (2006), involving an iterative process of coding and theme development conducted by the research team, in which responses were coded into recurring perceptual categories such as:

- Spatial perception
- Emotional response
- Attentional focus

Table 1. Thematic coding framework for audience feedback analysis

Raw Feedback	Initial Code	Category	Theme
“It feels like sound floating in space”	floating sound	spatial perception	spatial resonance
“Very calm and peaceful”	calmness	emotional response	immersive listening
“I lost track of time”	time distortion	attentional focus	immersive listening
“Like water moving slowly”	fluid imagery	perceptual imagery	timbral resonance

Thematic coding followed a three-step process: (1) familiarization with the data, (2) generation of initial codes from recurring descriptive expressions, and (3) grouping of codes into higher-level perceptual themes. To enhance analytical transparency, coding was con-

ducted iteratively, with initial codes reviewed and refined through repeated engagement with the dataset.

While the dataset is limited in scale and not intended for statistical generalization, this approach provides a structured interpretive framework that moves beyond purely anecdotal observation. This structured approach enhances the transparency and interpretive validity of the qualitative findings. While the study is qualitative in nature, efforts were made to ensure analytical rigor through systematic coding procedures and transparent documentation of interpretive steps.



Figure 1. Live performance of the guzheng-harp collaborative works in the cross-cultural music and wellbeing research concert, 2025.

4. Artistic Practice and Observations

4.1 Overview of the Compositions

The five compositions created for this project explored different approaches to integrating guzheng and harp within a shared sonic environment. Although each piece possessed a distinct musical character, several compositional principles were consistently employed throughout the project. The works emphasized gradual dynamic development rather than abrupt contrasts, allowing musical textures to unfold slowly and enabling listeners to perceive subtle changes in resonance and timbral interaction.

Melodic material frequently drew on pentatonic pitch collections, enabling the guzheng to retain its traditional melodic language while allowing harmonic adaptation by the harp. At the same time, the compositions intentionally incorporated extended resonance through sustained harp arpeggios and slowly decaying plucked strings, creating an acoustic environment characterized by openness and spatial depth.

The compositional process developed gradually through rehearsal-based experimentation. Rather than beginning with fully notated scores, initial musical ideas often emerged through improvisational exploration between the two performers. This approach allowed the musicians to investigate how the acoustic properties of the two instruments interacted in real time.

During early rehearsals, particular attention was given to balancing the acoustic projection of the instruments. Although both the guzheng and harp are plucked string instru-

ments, their sound projection characteristics differ significantly. The guzheng produces a bright and direct tone, whereas the harp tends to generate a broader harmonic resonance.

Achieving a balanced sonic texture therefore required careful adjustment of dynamics, articulation, and register placement. Harp arpeggios were often positioned in middle or upper registers to avoid masking the guzheng melodic line, while guzheng passages were occasionally simplified to ensure that harmonic resonance from the harp remained clearly audible.

The compositional process also involved experimentation with extended instrumental techniques. In several passages, harp bisbigliando tremolo was used to create a shimmering sonic background that supported slow guzheng melodies. In other sections, *près de la table* articulation produced a muted tone that contrasted with the open resonance of conventional harp playing. These timbral variations were coordinated with guzheng techniques such as vibrato and pitch bending, creating moments in which the expressive gestures of the two instruments appeared to merge into a unified sonic texture.

Table 2. Overview of the five guzheng-harp collaborative compositions

Title	Inspiration	Structural Features	Timbral Interaction
Morning Light	Dawn atmosphere	Gradual dynamic build	Harp arpeggios + guzheng melody
Cherry Blossoms	Japanese/Chinese imagery	Cyclical phrasing	Soft resonance + pitch bending
Cloud Dance	Movement of clouds	Free rhythm	Bisbigliando + glissando
Raindrops	Natural soundscape	Repetitive motifs	Pointillistic plucking
The Field	Open landscape	Slow harmonic pacing	Sustained resonance layers

closer correlation between instrumental technique and listener perception was observed. For example, the harp whistle effects and high-register harmonics in Raindrops were frequently associated with descriptions such as “light,” “sparkling,” and “rain-like,” while guzheng pitch bending contributed to impressions of “fluidity” and “expressive movement.”

This correlation indicates a direct perceptual linkage between specific instrumental techniques and listener imagery, suggesting that timbral and articulatory features can systematically shape emotional and sensory interpretation.

4.2 Timbral Interaction Between Guzheng and Harp

One of the most distinctive sonic features observed during the performances was the interaction between the timbral qualities of the two instruments. The guzheng typically produces a bright initial attack followed by a resonant decay shaped through finger pressure and vibrato, while the harp often generates a fuller harmonic resonance through chordal textures and arpeggiated patterns.

Representative audience comments further illustrate these perceptions:

“The sound feels like it is floating in the air, not coming from a single instrument.”

“It creates a very calm and meditative atmosphere, almost like being inside the sound.”

“The resonance reminds me of water spreading slowly.”

“I lost my sense of time while listening.”

These responses indicate that listeners consistently perceived the combined timbre as spatially diffused and immersive, suggesting a strong relationship between overlapping resonance and perceived sonic space.

These responses support the interpretation that timbral interaction between guzheng and harp contributes to a perception of spatial immersion and temporal suspension. When played together, these timbres created a layered sound environment in which guzheng melodic gestures appeared to emerge from a harmonic field generated by the harp. Audience feedback frequently described the combined sound as transparent, spacious, and atmospheric, suggesting that the interaction between the two instruments created a sonic environment that encouraged attentive listening and aesthetic immersion.

4.3 Harmonic Structure and Musical Tension

Harmonic design played a central role in shaping the expressive trajectory of the compositions. In particular, the use of consonant harmonic structures—primarily major and minor triads, open fifths, and extended chordal configurations—provided a stable and acoustically coherent framework for the interaction between guzheng and harp.

From an acoustical perspective, these consonant structures closely align with the natural overtone series, contributing to a sense of sonic clarity and perceptual stability. In performance, such harmonic materials were frequently realized through arpeggiated textures and sustained resonance, allowing harmonic continuity to function as an auditory grounding mechanism for listeners. Consonant harmonic structures, particularly major and minor triads, were frequently used to establish tonal grounding within the harp part. Such harmonic stability provided a resonant framework for the flexible melodic gestures of the guzheng.

Moments of harmonic tension were occasionally introduced through more complex chord structures such as minor seventh or diminished harmonies. These chords created temporary tonal instability that guided listener attention and introduced expressive contrast. In contrast, moments of harmonic tension were introduced through the controlled use of dissonant structures, including seventh chords and diminished harmonies. Rather than functioning as abrupt disruptions, these dissonant elements were carefully integrated into the musical flow and typically resolved into consonant harmony. This approach reflects a “tension–release” model of harmonic organization, in which temporary instability enhances expressive contrast while ultimately reinforcing perceptual coherence.

Such harmonic transitions may contribute to emotional processing by enabling listeners to experience phases of tension, anticipation, and resolution within a structured auditory environment.

From the perspective of music cognition, shifts between consonance and dissonance can function as structural devices that shape patterns of tension and release in musical listening (Huron, 2006).

Within the present compositions, such harmonic contrasts contributed to a dynamic musical environment in which stable resonance alternated with moments of heightened harmonic color.

4.4 Temporal Structure and Repetition

Another important compositional element was slow temporal pacing. Several pieces employed gradually unfolding musical gestures and repetitive melodic patterns, allowing listeners to focus on subtle variations in resonance and timbral color. Repetition may facilitate perceptual processing by enabling listeners to develop expectations about musical structure (Huron, 2006). Within the performances, these slow and repetitive structures encouraged attentive listening, drawing attention to overlapping resonance, dynamic shading, and evolving timbral detail.

Audience responses frequently described the musical atmosphere as “meditative,” “immersive,” or “calm,” suggesting that temporal pacing played an important role in shaping listener perception.

5. Discussion

The observations generated through this artistic research project contribute to broader discussions about the relationship between musical structure, cross-cultural performance, and listener experience. Although the project itself does not constitute a clinical music therapy intervention, the findings offer insight into how certain musical environments characterized by sustained resonance, gradual pacing, and timbral transparency may support attentive and reflective listening experiences often associated with musical wellbeing. By examining the interaction between guzheng and harp within a practice-based research context, the study highlights how instrumental timbre, harmonic structure, and temporal pacing collectively shape listener perception in cross-cultural musical environments.

5.1 *Timbre and Aesthetic Listening*

The perceived clarity and resonance of the guzheng–harp combination highlight the importance of timbre in shaping musical perception. Research in music perception suggests that listeners often respond not only to melodic or harmonic structures but also to the acoustic qualities of sound itself (Clarke, 2005).

The interaction between the overtone spectra of the guzheng and harp created a layered sonic environment that encouraged sustained listening attention. Rather than focusing solely on melodic progression, listeners appeared to engage with the evolving resonance of individual tones.

This mode of listening resembles what scholars describe as aesthetic listening, in which attention shifts toward the perceptual qualities of sound. This observation aligns with ecological approaches to music perception, which emphasize that listeners engage with sound as a dynamic auditory environment rather than discrete musical events (Clarke, 2005). The guzheng–harp interaction thus functions not only as a musical texture but as a perceptual field.

5.2 *Cross-Cultural Musical Dialogue*

The collaboration between guzheng and harp illustrates how cross-cultural musical interaction can generate new aesthetic possibilities. Ethnomusicological research has long emphasized that musical meaning emerges through cultural context and performance practice (Small, 1998).

In the present project, the guzheng contributed melodic expressivity rooted in Chinese musical aesthetics, while the harp provided harmonic resonance associated with Western tonal traditions. Their interaction created a hybrid sonic environment that listeners frequently described as both familiar and unfamiliar. Such hybridization may stimulate heightened attentional engagement as listeners negotiate the coexistence of different musical frameworks.

5.3 *Musical Structure and Listener Experience*

The compositional strategies observed in this study help explain the listener responses described in the previous section and highlight the importance of musical structure in shaping perceptual experience. Slow tempo, repetition, and gradual harmonic movement created an environment conducive to sustained listening attention. Music cognition research suggests that predictability and repetition can influence how listeners allocate attention to musical events (Huron, 2006).

These findings suggest broader implications regarding the relationship between musical structure and listener attention. In contemporary listening environments characterized by rapid information flow and constant sensory stimulation, musical experiences that emphasize gradual development and sustained resonance may encourage alternative modes of listening.

Several audience members reported experiencing a sense of temporal suspension, suggesting that the gradual unfolding of musical events may have altered their perception of musical time. Such experiences may be related to what some scholars describe as deep listening, a mode of attentive engagement in which listeners become aware of subtle sonic details and evolving resonance patterns.

From this perspective, the cross-cultural collaboration between guzheng and harp may not only produce new timbral combinations but also invite listeners to adopt different listening strategies. Rather than focusing exclusively on melodic progression, listeners may become attentive to the interaction between resonance, spatial acoustics, and harmonic color.

The listening experiences described by audience members also highlight the importance of acoustic space in shaping musical perception. Plucked string instruments are particularly sensitive to performance acoustics because their resonance interacts strongly with the surrounding environment. In concert settings with moderate reverberation, the sustained decay of plucked strings can create overlapping layers of sound that gradually blend into a continuous sonic field.

From the perspective of ecological theories of perception, listeners do not perceive musical sound as isolated acoustic events but rather as part of a dynamic auditory environment (Clarke, 2005). The interaction between instrumental timbre and performance space therefore becomes an important component of musical meaning.

Within the context of the present project, the combination of guzheng and harp resonance appeared to generate a sonic environment that listeners perceived as spacious and immersive. These impressions suggest that musical structure, timbral interaction, and acoustic environment collectively shape the listening experience. From a cognitive perspective, such listening experiences may reflect a shift from goal-oriented listening toward process-oriented auditory attention, in which listeners engage with evolving sonic details rather than discrete musical events. This mode of listening has been associated with meditative and immersive states in previous music psychology research.

The observations in this study also suggest that harmonic progression may play a subtle but significant role in shaping listener experience. Beyond static harmonic structures, the directional movement of harmony—such as ascending, descending, or cyclic progressions—may influence perceived emotional trajectory. Gradual harmonic ascent can contribute to a sense of expansion or activation, while descending patterns may be associated with release and relaxation. These dynamic harmonic processes, particularly when rendered through the continuous arpeggiated textures of the harp, may support a fluid and embodied listening experience that aligns with broader concepts of emotional regulation in music.

5.4 Limitations and Future Research

An additional limitation concerns the tuning systems of the two instruments. The guzheng allows flexible pitch inflection through finger pressure and is often associated with non-equal-tempered or context-dependent intonation. In contrast, the concert harp is typically tuned in a fixed twelve-tone equal temperament system.

This difference introduces potential microtonal discrepancies during performance, particularly in sustained harmonic contexts. While performers may adjust intonation perceptually, such tuning negotiation remains an underexplored variable in cross-cultural instrumental collaboration. Future research could investigate how listeners perceive these microtonal interactions and whether such tuning differences contribute to the sense of “expressive richness” or “sonic ambiguity” described in audience feedback.

The present study is primarily based on qualitative observation and listener reflection. Consequently, the findings cannot be interpreted as evidence of clinical therapeutic outcomes. In addition, listener responses may have been influenced by factors such as prior familiarity with the instruments, individual musical background, or the acoustic characteristics of specific performance venues. These contextual variables should therefore be considered when interpreting the observational findings presented in this study.

Future research could expand this work through interdisciplinary collaboration involving controlled listening experiments, physiological measurements, or cross-cultural audience studies. Such approaches may further illuminate how instrumental timbre, musical structure, and cultural familiarity influence listener perception.

6. Conclusion

This study examined the cross-cultural collaboration between the Chinese guzheng and the Western concert harp through a practice-based artistic research framework. By composing and performing five original works—Morning Light, Cherry Blossoms, Cloud Dance, Raindrops, and The Field—the project explored how the interaction of two plucked-string traditions might shape listener perception in musical environments associated with well-being.

The findings suggest that the combination of guzheng melodic expressivity and harp harmonic resonance can generate a distinctive sonic environment characterized by transparency, spatial resonance, and gradual musical development. The guzheng’s flexible pitch inflection and expressive techniques—such as vibrato, glissando, and pitch bending—create a highly nuanced melodic surface, while the harp provides a resonant harmonic framework through arpeggiated textures and sustained overtone structures. When combined, these acoustic characteristics form a layered sound field in which melodic gestures appear to emerge from a broader harmonic resonance.

Audience responses collected during the performances frequently described the musical atmosphere as immersive, meditative, and spacious. Although such observations cannot be interpreted as clinical therapeutic evidence, they suggest that certain musical structures—particularly slow temporal pacing, repetitive melodic gestures, and sustained resonance—may encourage attentive listening and aesthetic engagement. These listening experiences highlight the importance of timbre, acoustic space, and structural pacing in shaping how listeners perceive musical environments associated with relaxation and reflection.

From an interdisciplinary perspective, the study contributes to ongoing discussions connecting music therapy, music psychology, ethnomusicology, and artistic research. Rather than proposing a direct biomedical mechanism linking musical sound to therapeutic outcomes, the project emphasizes the role of aesthetic perception and cultural listening frameworks in shaping musical wellbeing experiences. In this sense, cross-cultural instrumental collaboration can be understood as a creative context in which listeners encounter new sonic relationships and interpretative possibilities.

At the same time, the findings highlight the value of integrating artistic practice with qualitative inquiry in exploring complex perceptual musical phenomena. The collaborative

compositional process functioned not only as artistic production but also as an exploratory laboratory for investigating timbral interaction and listener perception. 609
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Future research could extend this work through controlled listening experiments, 611
cross-cultural audience comparison, or physiological measurement methods drawn from 612
music cognition and neuroscience. Such interdisciplinary approaches may further clarify 613
how instrumental timbre, musical structure, and cultural familiarity interact in shaping 614
listener engagement within complex musical environments. 615

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