

# THE DEVELOPMENT OF TEACHING METHOD FOR CHAMBER MUSIC COURSES IN CHINESE COMPREHENSIVE UNIVERSITIES

## RUI WANG

Chakrabongse Bhuvanarth International College of Interdisciplinary Studies Rajamangala University of Technology Tawan-ok, Thailand. Email: anniecelliwang@163.com

## PRAMOTE PHOKHA

Chakrabongse Bhuvanarth International College of Interdisciplinary Studies Rajamangala University of Technology Tawan-ok, Thailand. Email: pramote@rrmutto.ac.th

## NUT CHIANGTHONG\*

Professor Dr Chakrabongse Bhuvanarth International College of Interdisciplinary Studies Rajamangala University of Technology Tawan-ok, Thailand. \*Corresponding Author Email: nut\_ch@rrmutto.ac.th

### Abstract

This study investigates an innovative chamber music pedagogy integrating Project-Based Learning (PBL), Collaborative Learning, and Musical Intelligence Theory to enhance performance education. Employing a three-phase mixed-methods design, the research first identified pedagogical needs through interviews and literature review, then implemented the integrated approach with 17 music majors at South China Normal University, and finally assessed outcomes through comprehensive pre-post testing. Quantitative results demonstrated significant improvements across all measured dimensions: technical proficiency increased from 3.79 to 4.35 ( $p < 0.01$ ), artistic expression reached 87.6%, and ensemble skills achieved 84.6%. The findings validate this multidimensional framework as an effective model for chamber music instruction, offering both theoretical insights and practical strategies for music education reform. The result showed that: 1. Current chamber music education in higher music institutions has established a relatively comprehensive curriculum system yet still faces several structural issues including an imbalance between technical training and artistic expression, limited repertoire diversity, traditional teaching methods, and insufficient resources, all of which constrain the holistic development of students' comprehensive musicianship. 2. This study innovatively integrates Musical Intelligence Theory, Project-Based Learning, and Collaborative Learning to construct a multidimensional pedagogical framework, with empirical results demonstrating significant improvements in students' technical proficiency (average scores increased from 3.79 to 4.35), artistic expression (87.6%), and ensemble skills (84.6%), while successfully achieving cross-cultural integration of Western classical and Chinese musical traditions, thereby providing both theoretical and practical paradigms for music education reform. 3. Through paired t-test analysis, the p-values for all dimensions were less than 0.05. The significant t-values further validate the effectiveness of the course in enhancing students' technical skills and artistic expression. This result indicates that the course has achieved notable success in comprehensively enhancing students' overall musical literacy and performance abilities.

**Keywords:** Chamber Music Education, Chamber Music Teaching Methods, Musical Intelligence, Project-Based Learning.

## 1. INTRODUCTION

Since the 1990s, the Chinese government has prioritized holistic education by embedding “quality education” into the core of its reforms. Aesthetic education, which fosters creativity, cultural appreciation, and emotional development, has been central to this vision (Li et al., 2023). Within this framework, music education has gained increasing

recognition as a vital means of cultivating artistic literacy and supporting comprehensive student development. Among its forms, chamber music stands out for its unique emphasis on collaboration, interpretive sensitivity, and artistic expression, making it an effective vehicle for aligning China's educational reforms with global movements toward student-centered learning (Guan, 2023). Chamber music is distinctive for its ensemble structure and performance practice. Performed in small groups without a conductor, it requires independent musicianship combined with acute responsiveness to peers. Each performer carries an autonomous role while contributing to a unified whole, which cultivates listening skills, adaptability, and interpretive balance (Wang, 2020). Historically, the genre evolved from being defined as *Musica cubicularis* in the 17th century to one of the most refined forms of instrumental art (Liu, 2022).

Esteemed performers, such as Isaac Stern, have affirmed its centrality, describing it as the "basic color" of the performing arts. Unlike symphonic works, chamber music privileges clarity and conversational interplay, offering performers and audiences an intimate and nuanced musical experience. Its dual artistic and pedagogical significance underscores its value in higher education. Pedagogically, chamber music fosters cooperative learning and ensemble cohesion. Students learn not only technical mastery but also how to adapt, negotiate, and achieve consensus in performance (Feldman et al., 2020). The melodic line often shifts, requiring others to support through tonal adjustment and phrasing, which resembles dialogue in interpersonal communication (Brocklehurst, 2025). This dynamic process reflects the principles of listening and unity emphasized in chamber pedagogy, where synchronization of rhythm, tone, and interpretation is essential (Pierce, 2025). Through discussion, rehearsal, and refinement, students develop musicianship alongside interpersonal and problem-solving skills that extend beyond music into broader contexts of collaboration and communication. The growing significance of chamber music has led to its adoption in conservatories and universities across China (Feng, 2020). Compared with orchestral training, chamber ensembles are more practical to implement while still offering rich opportunities for developing ensemble literacy and expressive artistry.

They complement solo performance by addressing overlooked skills such as harmonic listening, sight-reading in context, and adaptive coordination. However, existing chamber music programs in China remain inconsistent in structure, credit allocation, and pedagogy (Massy and Sembiente, 2023; Chen, 2014). These gaps reveal the need for innovative instructional frameworks that unify teaching approaches while remaining flexible to institutional contexts. In response, this study proposes the application of the ADDIE instructional design model as a systematic approach to chamber music pedagogy. The model consists of five stages: Analysis, Design, Development, Implementation, and Evaluation, which together provide structured yet adaptable guidance for curriculum innovation (Gardner, 2021). Applied to chamber music, ADDIE supports the definition of learning objectives, repertoire selection, rehearsal planning, and assessment through both performance and peer feedback (Spatioti et al., 2022). By integrating theoretical study with practical performance, the model enhances student motivation and engagement while ensuring continuous improvement. Thus, ADDIE provides a

framework capable of addressing the challenges facing chamber music education in China, bridging technical precision with expressive depth and ensemble coordination, and aligning with broader goals of educational reform.

## 2. RESEARCH OBJECTIVES

- 1.To survey problems and needs of teaching method for chamber music courses.
2. To develop teaching methods for chamber music courses.
3. To evaluate development of teaching method for chamber music course.

## 1. Research Framework

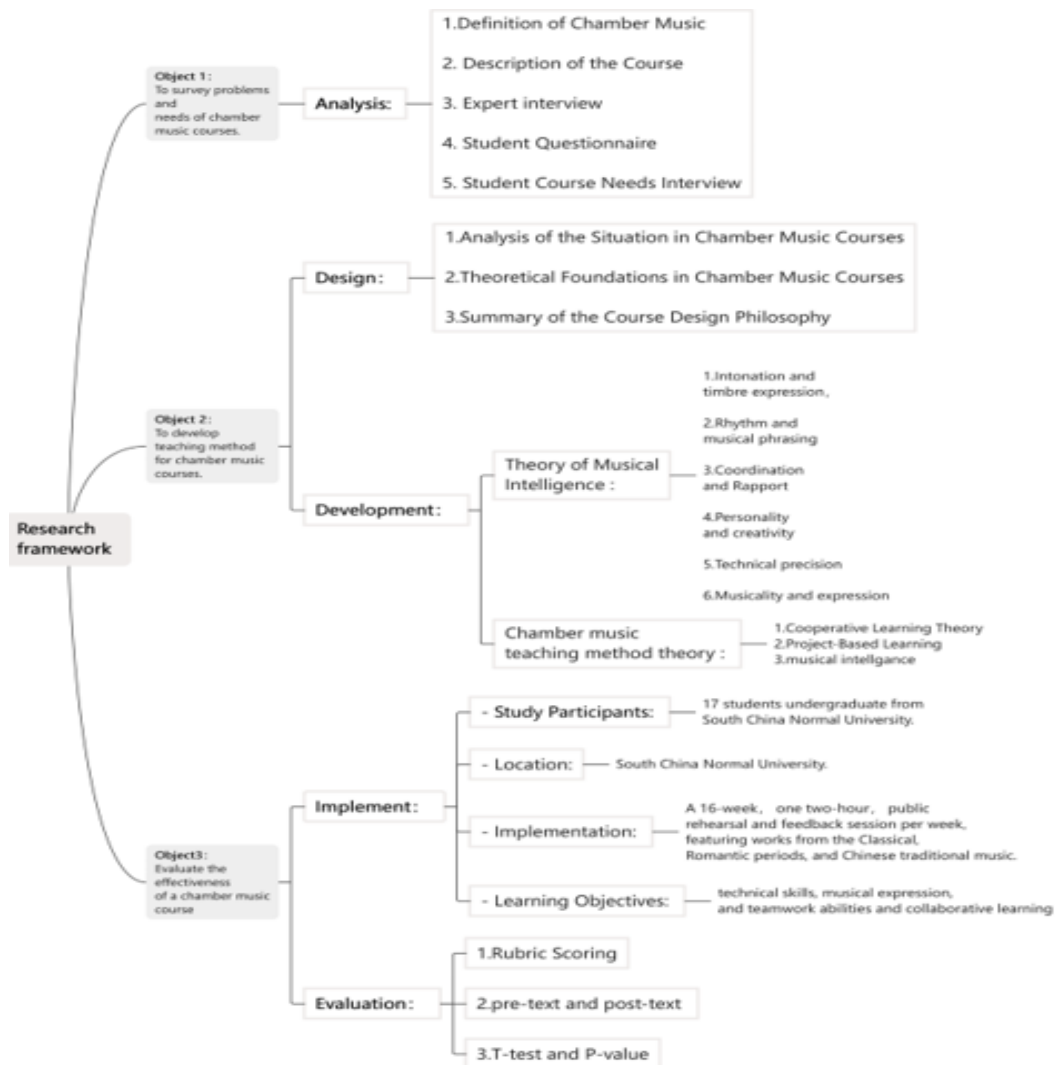


Figure 1: Research Framework

Source: Rui Wang (2025)

## 2. Chamber Music

Chamber music refers to a group of musicians performing together, encompassing a wide range of sizes and configurations, from small groups like duos or trios to larger assemblies such as orchestras or choirs (Fullard, & Cotter-Lockard 2025). Also, Fullard, & Cotter-Lockard emphasizes on its collaborative music-making, where each member contributes to the overall performance, whether in classical, jazz, or popular music contexts. As a broad concept, ensemble includes various forms of group performances, from informal gatherings to highly structured arrangements.

Chamber music is a form of classical music composed for a small ensemble, typically featuring one player per part, without a conductor. It is often referred to as the "music of friends" because of its intimate nature, requiring close collaboration and interaction among musicians (Cook, 2024). Common chamber music ensembles include string quartets, piano trios, wind quintets, and various mixed-instrument groups. The repertoire spans from the Baroque period to contemporary compositions, emphasizing balance, communication, and individual expressiveness within the ensemble (Pedron, 2021 and Blum, D. 1987).

In contrast, chamber music represents a more specialized and refined subset of ensemble performance. Typically involving smaller groups of two to nine musicians, chamber music focuses on intricate interactions and equal dialogue among parts, often without a conductor. This form of music is usually performed in intimate settings, highlighting precision, nuance, and the artistry of each individual performer (Jia et al., 2024). Thus, while ensemble is a general term covering a wide spectrum of group music, chamber music delves into a more detailed and professional realm, emphasizing depth and sophistication in musical collaboration

Chamber music is a small ensemble music form typically consisting of 2 to 10 performers, with each instrument taking on an independent part, emphasizing a balance between individual expression and collective collaboration. Its characteristics include small-scale arrangements, intimacy and interactivity, refined musical structures, diverse styles and forms, as well as significant educational and artistic value. The small performance scale of chamber music requires a high level of together and interaction among performers, resulting in more and personalized musical expression. At the same time, its works are delicate in structure and rich in musical language, encompassing a variety of styles from the Baroque period to modern music, such as the sonata form of the Classical period, the lyrical expression of the Romantic period, and the experimental creations of modern music. Furthermore, chamber music holds an important place in music education, fostering performers' collaborative skills, musical understanding, and expressive abilities, while also serving as a vital for musical creation and performance art (Jia et al., 2024). Chamber music is distinguished by its intimate and collaborative nature, requiring musicians to perform as both individual artists and cohesive ensemble members. (Pedron, 2021). Unlike orchestral music, which is typically led by a conductor, chamber music ensembles rely on direct communication, listening, and mutual responsiveness among players. This genre emphasizes balance, clarity, and interplay,

often featuring intricate dialogues between instruments. The compositions are structured to ensure that each musician plays a unique and independent role, creating a dynamic and interactive musical conversation. Traditionally performed in smaller settings, chamber music allows for nuanced expression and close audience engagement. The repertoire spans from Baroque trio sonatas to contemporary experimental works, showcasing a wide range of textures, timbres, and harmonic complexity while maintaining its core principle of intimate musical exchange. (Skinner 2020).

Also, Pedron, (2021) noted String chamber music typically features instruments such as the violin, viola, cello, and double bass, which form the core of ensembles like string quartets (two violins, viola, and cello), string trios, and larger groups such as string quintets or sextets. The violin, known for its bright and expressive tone, often carries the melody, while the viola, with its warmer and deeper sound, provides inner harmonies. The cello, with its rich and resonant tone, bridges the higher and lower registers, offering both melodic and rhythmic support, and the double bass, the largest and lowest-pitched instrument, adds depth and richness to the ensemble's lower register, creating a balanced and cohesive sound.

### 3. The Related Theoretical Underpinning: ADDIE Theory

The ADDIE instructional design model, first developed by the U.S. Air Force in the 1950s, remains a widely used and mature framework for instructional planning, making it highly applicable to chamber music teaching methods in Chinese comprehensive universities. With nearly 70 years of development, it continues to be the most influential model in instructional design. Its five interconnected stages (Analysis, Design, Development, Implementation, and Evaluation) provide a systematic approach to structuring learning content, methods, processes, and outcomes. As shown in the figure below, the model emphasizes coherence, feedback, and continuous improvement to enhance instructional quality and student learning.

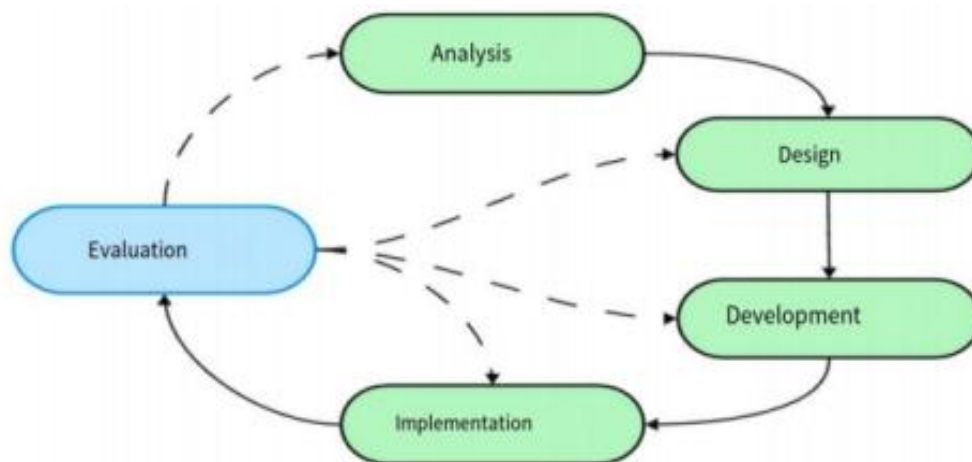


Figure 2: ADDIE Teaching Model

Source: Rui Wang (2025)

#### **4. Application ADDIE in the Development and Management of Teaching and Learning**

The ADDIE teaching model has been widely applied in the development and management of teaching and learning, with significant success in foreign language instruction where it emphasizes systematic design and process integrity (Abuhassna et al., 2024). By combining learning theories with instructional methods, ADDIE ensures each stage builds on the previous one while feedback loops validate and refine teaching strategies. In practice, the model encourages varied use of multimedia resources to address different learning needs, employing audiovisual tools for listening and speaking, and textual or visual aids for reading and comprehension (Yeh & Tseng, 2019). Its adaptability allows application at both micro-level course design and macro-level curriculum planning, turning traditional isolated methods into dynamic cycles that enhance engagement and outcomes. Beyond language, ADDIE has also been applied in fields like chemistry education, integrating professional knowledge with moral and political learning to strengthen intellectual and ethical development (Yeh & Tseng, 2019).

In higher education, the ADDIE model provides a structured framework to address key challenges in teaching and learning, including gaps between theory and practice, ineffective methodologies, and poorly defined curriculum structures. The five stages—Analysis, Design, Development, Implementation, and Evaluation—offer a comprehensive pathway for curriculum innovation. For example, the Analysis stage identifies objectives and learner needs through surveys and interviews, forming the basis for tailored instruction (Williams, 2025). The Design stage structures learning content and tasks for relevance, while the Development stage produces interactive and multimedia resources to increase engagement. The Implementation stage emphasizes active participation, collaboration, and performance-based learning, with real-time feedback for adjustments. Finally, Evaluation uses diverse assessment tools, such as tests and student feedback, to ensure continuous improvement (Clark, 2015).

Applied systematically, the ADDIE model advances the scientific management of teaching and learning by aligning instructional objectives with practical outcomes. It fosters student interest, strengthens skills, and promotes collaboration, while also creating a cycle of innovation that adapts to evolving educational needs. As a result, ADDIE not only improves instructional quality but also supports the sustainable development of higher education, demonstrating its value as a universal framework for designing, managing, and enhancing learning experiences across disciplines.

### **3. RESEARCH METHODOLOGY**

This study adopted a three-phase mixed-methods design to investigate the effectiveness of an innovative chamber music pedagogy that integrates Project-Based Learning (PBL), Collaborative Learning, and Musical Intelligence Theory. A mixed-methods approach was considered appropriate because it allowed both measurable outcomes and in-depth insights to be captured, ensuring a comprehensive understanding of the teaching model's

impact. Mixed approaches are increasingly recognized in music education research as effective for evaluating complex pedagogical interventions (King, 2022).

The first phase focused on identifying pedagogical needs and existing gaps in chamber music instruction. To achieve this, qualitative data were collected through semi-structured interviews with music educators, complemented by a detailed literature review. The findings from this stage provided the foundation for designing the integrated teaching model, ensuring it was grounded in both theory and practice. Building on these insights, the second phase implemented the approach with 17 undergraduate music majors at South China Normal University over one academic semester. Instructional activities included group rehearsals, peer feedback, reflective discussions, and project-based performances. Such strategies align with recent scholarship in higher music education that highlights the importance of combining traditional performance practice with innovative, student-centered teaching methods (Jørgensen, 2023).

In the final phase, the effectiveness of the pedagogy was evaluated using both quantitative and qualitative methods, reinforcing the reliability and validity of the findings. Pre- and post-intervention assessments measured students' musical skills, collaborative abilities, and aesthetic sensitivity, while classroom observation logs, performance rubrics, and student reflection journals provided richer qualitative insights. By integrating multiple forms of data, this study followed best practices in evaluating music education interventions, ensuring a holistic view of both learning outcomes and student experiences (Biasutti & Concina, 2021). Collectively, these phases created a coherent research process that not only assessed the impact of the model but also demonstrated its potential for sustainable application in higher education.

## 4. RESULTS

### 4.1 Problems and Needs of Chamber Music Courses

The interviews with three experienced music educators revealed pressing challenges in chamber music instruction, particularly in addressing the diverse backgrounds, technical abilities, and learning styles of students. A consistent concern was the limited teamwork skills of students who were trained mainly as solo performers, leaving them unprepared for the ensemble's demands of timing, tonal blending, and interpretive consensus. This gap was further complicated by disparities in technical proficiency, which made group formation and instructional pacing difficult. Even students with advanced skills often struggled to translate technical execution into expressive performance, limiting their ability to engage in musical storytelling. To respond to these challenges, educators emphasized the role of Musical Intelligences Theory in designing differentiated instruction. They highlighted three effective teaching models: group collaboration, which develops responsibility and artistic dialogue through peer-led rehearsals; blended learning, which bridges theoretical knowledge and live performance practice; and progressive learning, which scaffolds ensemble skills from simple to complex works, aided by video analysis for reflective improvement.

Performance-related difficulties also emerged as central issues, particularly in ensemble coordination, rhythm and intonation, and tonal unity. Many students performed independently rather than as part of a cohesive group, reflecting a dependence on instructors for cues and a lack of autonomous decision-making. Achieving balance and blend was equally challenging, given differences in timbre and articulation among players. To counter these weaknesses, educators suggested practical solutions such as extended rehearsal time, targeted sectional coaching, and additional live performance opportunities. These were seen as essential not only for improving ensemble cohesion but also for boosting confidence and interpretive depth. Real-time feedback during rehearsals was stressed as more impactful than post-performance reviews, since it allowed students to correct errors and reflect collaboratively. At the same time, experts underscored the need to prioritize collaboration, aural training, and expressive development to overcome the persistence of the “soloist mindset.” By strengthening listening skills and coordinated phrasing, students could move beyond technical mastery toward interpretive unity and artistic communication.

Looking to future improvements, the educators recommended innovative strategies to enrich chamber music pedagogy and meet student expectations. Students themselves sought more personalized coaching, greater stage exposure, and stronger teamwork preparation. Active learning strategies such as simulated performances, role-switching, and task-based collaboration were reported to be effective in fostering adaptability, accountability, and mutual understanding. Group discussions and reflective feedback further encouraged interpretive insight and consensus. Beyond traditional instruction, experts also advocated for interdisciplinary and international collaborations, including the integration of music with theatre, dance, poetry, and visual arts, as well as participation in global workshops and exchange programs. Such initiatives broaden students’ interpretive palette while cultivating creative versatility. Concretely, measures such as live performance evaluations, cross-class mentoring, and tailored ensemble coaching were seen as crucial to enhancing learning outcomes. Taken together, these findings point to a comprehensive framework for reforming chamber music education: one that emphasizes individualized support, collaborative learning, and expressive artistry, while aligning with broader curricular innovations to prepare students for the complexities of ensemble performance.

#### **4.2 Student and Teacher Survey Results: Identifying Problems and Needs**

To evaluate the effectiveness of the existing chamber music course and identify areas for improvement, both student feedback surveys and structured needs assessments were conducted. The results provide critical insights into the pedagogical, structural, and artistic challenges faced by students and instructors alike.

A total of 17 students participated in the course feedback survey, all of whom were actively enrolled in the chamber music program and involved in its final performance. The survey, which included both standard and reverse-coded questions, revealed that average scores across ten core dimensions ranged between 2.5 and 3.5 on a 5-point scale. This indicates that, while some elements of the course are functional, there remains

considerable room for enhancement, particularly in terms of content diversity, instructional methods, and resource support.

One of the most prominent concerns identified was the lack of repertoire diversity, which received an average score of 2.9, with most responses falling in the neutral-to-negative range. Students expressed dissatisfaction with the repetitiveness and limited challenge of the assigned pieces. Additionally, the low integration of local musical elements (average score 3.1) suggests that the course fails to connect with students' cultural backgrounds, thereby limiting their engagement and artistic resonance.

The survey also revealed issues related to teaching implementation. The rigidity of teaching methods, with a score of 2.8, points to a lack of flexibility and innovation in instructional delivery. Students reported a desire for more student-centered and adaptive approaches, allowing them to actively participate in shaping their learning experience. Perhaps most concerning was the lack of collaboration guidance, which received the lowest score (2.7). This underscores a significant gap in helping students develop the interpersonal and ensemble skills essential for chamber music performance.

In terms of resource availability and practical experience, the feedback highlights several challenges. A lack of access to performance opportunities received a score of 3.5 (reverse-coded), signaling a strong unmet demand for stage experience. Students are eager to apply their learning in real-world contexts and believe more concerts and public showcases would significantly enhance their confidence and collaborative skills. Additionally, hardware limitations, including insufficient rehearsal space and instrument availability (score 3.2), and limited room for creative expression (score 3.1) further hindered students' engagement and artistic exploration.

Overall, the survey analysis emphasizes the need for a comprehensive revision of both curriculum design and instructional delivery. To enhance learning outcomes and student satisfaction, it is essential to introduce more varied and culturally inclusive repertoire, adopt more flexible and interactive teaching strategies, and improve access to resources and performance platforms.

### **4.3 Student Needs and Expectations**

In addition to the structured survey, in-depth feedback was gathered from students to gain a more nuanced understanding of their goals, challenges, and expectations within the chamber music course. The responses revealed a range of aspirations and highlighted specific areas in which students feel additional support and curriculum development are necessary.

Students' primary goals in taking chamber music include improving ensemble performance skills, developing emotional expression through music, building confidence on stage, and enhancing musical interpretation. Several students emphasized their desire to become more musically communicative and responsive within group settings, noting the importance of listening and coordination in achieving artistic cohesion.

When discussing the challenges they face, students pointed to difficulties such as staying synchronized with fellow performers, matching dynamics and tone, adapting to subtle tempo shifts without a conductor, and balancing between leading and supporting roles in the ensemble. These issues illustrate the need for more targeted guidance in ensemble coordination, communication, and real-time adaptability. Students also expressed clear opinions on the areas of instruction that require greater emphasis. Rehearsal techniques, sight-reading, interpretation, and stage presence were frequently mentioned as areas where they seek further development. They expressed a desire for instruction that not only hones technical precision but also nurtures expressive and confident performance. An interesting insight emerged from student responses regarding repertoire preferences. While some students enjoy classical chamber pieces, others wish to explore more diverse musical genres such as jazz, contemporary works, folk music, Chinese traditional music, and film soundtracks. This suggests that expanding the curriculum to include culturally varied and modern compositions could significantly enhance student engagement and broaden their artistic exposure.

In terms of feedback and learning methods, students indicated a preference for a combination of instructor coaching and peer review. They appreciate expert guidance for refining technique and interpretation, but also value the collaborative insights gained from peer discussions and group reflection. Several students noted that group evaluations help them better understand ensemble dynamics, while individual feedback is essential for personal growth.

These findings offer a valuable student-centered perspective on curriculum development. They suggest that chamber music education should move toward a more inclusive, interactive, and expressive model—one that prioritizes ensemble communication, diverse musical exploration, and meaningful feedback loops. By aligning the course design with these student needs, educators can better support both technical mastery and artistic maturity, ultimately leading to more fulfilling and impactful learning experiences.

#### **4.4 Development of Chamber Music Teaching Methods**

To enhance the quality of chamber music education, this study developed a student-centered teaching model grounded in Musical Intelligence Theory, Project-Based Learning (PBL), and Collaborative Learning Theory. The model was designed to strengthen students' technical skills, ensemble collaboration, cultural awareness, and artistic expression through carefully selected repertoire and innovative pedagogy. The course drew on works across Western and Chinese traditions—Beethoven's *Viola and Cello Duet*, Mozart's *Divertimento*, Rachmaninoff's *Elegy*, Rabinowitz's *Spanish Suite*, and two traditional Chinese pieces, *Lullaby* and *The Moon Reflected on the Second Spring*. These selections provided a wide range of interpretive and technical challenges, exposing students to diverse musical aesthetics while reinforcing the idea that chamber music is both a technical and cultural endeavour.

The course objectives focused on five key areas: technical mastery, expressive depth, ensemble coordination, cultural engagement, and performance practice. Technical skills

were developed through rehearsals that addressed intonation, timbre, rhythm, and phrasing. For example, Beethoven's duet trained tonal blending and instrumental dialogue, while the *Spanish Suite* emphasized rhythmic precision. Beyond accuracy, students were encouraged to cultivate emotional expression, with Rachmaninoff's *Elegy* providing a platform for exploring Romantic intensity and personal interpretation. Equally important was teamwork, as chamber music inherently demands collective responsibility; Mozart's *Divertimento* became a tool for refining balance, interplay, and structural awareness within an ensemble. To broaden cultural horizons, Chinese works invited students to interpret timbres and emotions rooted in indigenous traditions, thereby fostering interpretive sensitivity and cross-cultural competence. A final public concert served as both capstone and assessment, showcasing students' progress in artistry, teamwork, and stage presence.

These objectives were supported by the six components of Musical Intelligence Theory: intonation and timbre, rhythm and phrasing, coordination and rapport, individuality and creativity, technical precision, and musicality. Instruction and evaluation were explicitly aligned with these elements. For instance, Beethoven's duet helped refine timbre blending, the *Spanish Suite* sharpened rhythmic understanding, and Mozart's quartet rehearsals cultivated responsiveness and balance. Rachmaninoff's piece emphasized interpretive individuality, while traditional Chinese works strengthened expressive nuance. This theoretical grounding ensured that technical drills and interpretive coaching were not fragmented tasks but interconnected processes aimed at holistic musical growth. Students were thus guided to move seamlessly from technical mastery to expressive artistry and from individual responsibility to collaborative success.

The teaching methodology relied on PBL, framing each piece as a structured project. Students began with score analysis, contextual research, and listening, followed by guided rehearsals to address technical and interpretive issues, culminating in live performance. Collaborative Learning Theory enriched this process through peer evaluations, group discussions, and role-switching exercises, enabling students to develop interpersonal intelligence and constructive communication. Teacher demonstrations further modeled expressive gestures and technical nuances, giving students real-time examples of professional artistry. Such demonstrations clarified abstract concepts like emotional color or phrasing, allowing students to internalize and apply them during rehearsals. These methods collectively bridged theory and practice, reinforcing the idea that chamber music is both a cognitive and social process.

The course extended beyond musical intelligence to nurture interpersonal, intrapersonal, linguistic, and kinesthetic dimensions of learning. Collaboration cultivated listening, empathy, and mutual adjustment; self-reflection and personal goal setting encouraged intrapersonal growth; score analysis engaged linguistic reasoning; and stage performance refined bodily-kinesthetic awareness. By uniting these intelligences, the program created a multidimensional learning environment that prepared students for both artistic and professional futures. Ultimately, the redesigned chamber music course demonstrates how repertoire diversity, integrated pedagogy, and interdisciplinary

learning can create meaningful educational experiences. The successful final concert affirmed the model's effectiveness, proving that chamber music education, when grounded in creativity, collaboration, and cultural relevance, can nurture not only skilled performers but also adaptable, reflective, and culturally literate musicians.

#### 4.5 Chamber Music Teaching Content: Beethoven's Eyeglass Duo for Viola and Cello

Beethoven's Eyeglass Duo, WoO 32, composed around 1796–1797, is a unique and engaging work within his chamber music repertoire. Written for his friend and amateur cellist Nikolaus Zmeskall, the piece is notable for its rare instrumentation—viola and cello—and its blend of playfulness and emotional depth. Despite its brevity, the work presents a rich exploration of instrumental dialogue, counterpoint, and expressive phrasing, making it a valuable study piece for chamber music students.

Also, in line with the technical perspective, the piece challenges performers to maintain precise intonation in an exposed texture, requiring careful attention to pitch and a well-blended timbre between the two instruments. The absence of harmonic support from a piano place's greater emphasis on ensemble cohesion, demanding a high level of listening, coordination, and mutual responsiveness. Rhythmic synchronization is particularly important, as Beethoven's writing features frequent shifts, syncopations, and conversational phrasing that depend on clear articulation and timing.

Additionally, performers must navigate demanding passages involving rapid string crossings, swift position changes, and dynamic contrasts that shape the music's dramatic character. Success in performing this duo depends on a deep understanding of each instrument's role, sensitive musical interpretation, and collaborative ensemble skills. Overall, the Eyeglass Duo offers an ideal platform for refining both individual technique and ensemble interaction in a chamber music setting.

The image displays a musical score for Beethoven's 'Eyeglass Duo' (WoO 32), marked 'Allegro.' and composed by 'L. van Beethoven.' The score is written for Viola and Violoncello (Cello) in 3/4 time, with a key signature of two flats (B-flat and E-flat). The Viola part is on the upper staff, and the Cello part is on the lower staff. The score shows the first 14 measures, with measure numbers 5, 10, and 14 indicated. The music features rhythmic counterpoint and melodic direction, with dynamic markings such as *f* (forte) and *mf* (mezzo-forte). The Viola part begins with a forte dynamic and a melodic line, while the Cello part provides a rhythmic accompaniment. The score is presented in a standard musical notation format with a treble clef for the Viola and a bass clef for the Cello.

Figure 3: Rhythmic Counterpoint and Melodic Direction

Source: Beethoven's Eyeglass Duo, WoO 32 (mm.1-14) (2025)

## Rehearsal and Interpretation Strategies:

### 1. Structural and Harmonic Awareness

Identifying melodic motifs and how they evolve through the piece allows for a more cohesive interpretation. Analyzing harmonic progressions helps performers understand phrase direction and emphasize key moments of tension and resolution. Studying Beethoven's use of counterpoint provides insights into how the viola and cello interact dynamically.

### 2. Technical and Group Coordination

Regular intonation exercises focusing on double stops and harmonic tuning help improve ensemble blending. Practicing tempo shifts and rubato adjustments ensures natural phrasing without disrupting rhythmic flow. Role awareness exercises, where players alternate between leading and accompanying roles, help refine balance and expressive coordination.

The image shows a musical score for Beethoven's 'Eyeglass Duo' (WoO 32), measures 18-25. The score is in G major and 3/4 time. It features a piano (p) dynamic and includes markings for 'cresc.' and 'f'. The score is published by Edition Peters, No. 9665, and is copyrighted by C. F. Peters in 1939.

**Figure 4: Express Musical Emotion Through Staccato**

Source: Beethoven's Eyeglass Duo, WoO 32(mm.18-25) (2025)

### 3. Expressive Performance and Communication

Encouraging spontaneous phrasing choices allows performers to explore different expressive interpretations. Focusing on bow control and vibrato variations enhances the emotional depth of lyrical passages. Small ensemble performances or informal rehearsals with audience feedback can help refine stage presence and interpretative confidence.

## 4.6 Conclusion

The effectiveness of the chamber music course was evaluated through a structured post-concert assessment that measured student progress across six key musical dimensions:

intonation and timbre, rhythm and phrasing, ensemble coordination, creativity, technical precision, and musical expression. The results showed significant improvement in students' pitch accuracy, tone control, rhythmic clarity, and ability to phrase naturally. Students also demonstrated enhanced ensemble rapport, confidently adjusting their playing to maintain cohesion and support the musical narrative.

Notably, the course fostered students' individuality and interpretive creativity, allowing them to bring personal expression into their performances while respecting stylistic conventions. Their technical development was evident in more precise articulation, improved bow control, and greater ease in navigating challenging passages. Emotionally, performances grew more compelling, with nuanced vibrato, dynamic shaping, and expressive intent becoming more consistent across ensembles.

This progress reflects the effectiveness of the integrated teaching approach. Project-Based Learning (PBL) enabled students to manage their learning independently, plan rehearsals, set goals, and take ownership of their musical growth. In parallel, Collaborative Learning nurtured peer interaction through role-sharing, feedback, and group problem-solving, reinforcing both technical and social development.

The design and development stages of the ADDIE model were crucial. In the design phase, repertoire was carefully selected to match students' levels while gradually introducing stylistic, harmonic, and technical challenges. For instance, works like *Mozart's Divertimento* prepared students for classical balance and articulation, while more expressive pieces like *Rachmaninoff's Elegy* demanded emotional depth and phrasing control. During the development phase, annotated scores, targeted technical exercises, and performance examples provided essential resources. Structured rehearsals and peer-led feedback further reinforced ensemble cohesion and interpretive depth.

Ultimately, the course succeeded in promoting well-rounded musical growth. Students not only improved technically but also developed greater confidence, artistic maturity, and a deeper appreciation for the collaborative essence of chamber music.

### **Evaluation of Student Progress Through Pre-Test and Post-Test Results**

To assess students' initial musical abilities and guide instructional design, a pre-test evaluation was conducted before the start of the chamber music course. Without prior teacher intervention, students performed selected works from Western and Chinese chamber music repertoires.

Their performances were evaluated by three expert assessors across six key dimensions: intonation and timbre expression, rhythm and phrasing, coordination and ensemble rapport, personality and creativity, technical precision, and musicality and expression. Each aspect was rated on a 5-point scale.

The pre-test revealed notable variation in student abilities. While some demonstrated strength in individual technique, common challenges included weak rhythmic stability, inconsistent intonation, and limited ensemble coordination.

These findings established a valuable performance benchmark and allowed instructors to design personalized teaching plans that addressed students' individual strengths and weaknesses.

Following the semester-long instruction using Project-Based Learning (PBL) and Collaborative Learning, a post-test was administered using the same criteria. Results showed substantial improvement across all performance dimensions.

Students exhibited better ensemble cohesion, expressive phrasing, and technical control. Their interpretative confidence and creative input were also noticeably enhanced.

A direct comparison between pre- and post-test scores confirmed significant progress. For instance, average scores in areas like ensemble coordination, phrasing, and musical expression improved by nearly a full point in many cases.

Students who initially struggled with rhythmic synchronization or tonal blending showed marked development, attributed to the structured, student-centered learning approach.

The integration of Musical Intelligence Theory also supported differentiated instruction, helping students grow in both technical and interpersonal aspects of performance.

In conclusion, the combined teaching model—grounded in pre-test diagnostics, project-based instruction, and collaborative rehearsal strategies—proved highly effective in developing students' chamber music skills. The post-test results validated the course design, demonstrating its success in fostering both technical mastery and expressive artistry in chamber music performance.

**Table 1: Pre-test and Post-test Result Comparison**

N o.	Intonation and timbre expression		Rhythm and musical phrasing		Coordination and Rapport		Personality and creativity		Technical precision		Musicality and expression		Average		Total	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	4	4	3.8	4.5	3.6	4.2	4.2	4.2	4	4	3.6	4.5	3.9	4.2	23.2	25.4
2	3.8	3.8	4	4.5	4.6	3.9	4.2	4.2	4.5	4	4.6	4.6	4.3	4.2	25.7	25
3	3.6	3.8	4.2	4.3	4	4	3.8	4.3	4.2	4.7	4.2	4.5	4.0	4.3	24	25.6
4	4.3	4.2	4	4	3.6	3.8	4.3	4	3.8	4.3	4	4.2	4.0	4.1	24	24.5
5	4.2	4.3	4	4.7	4.2	4.2	4.3	4.5	3.6	4.5	4.1	4.6	4.1	4.5	24.4	26.8
6	3.8	3.8	3.8	4.3	4	4.5	4	4.7	4.5	4.4	4.2	4.6	4.1	4.4	24.3	26.3
7	3.8	4.2	3.6	4	3.8	4.5	3.2	4	4	4.7	4	4.3	3.7	4.3	22.4	25.7
8	3.7	4.2	4	4.2	3.3	4.4	3.6	4.4	4.5	4.7	3.8	4.6	3.8	4.4	22.9	26.5
9	4.3	4.2	3.8	4.7	3.6	4.5	4.3	4.5	3.6	4.7	3.8	4	3.9	4.4	23.4	26.6
10	3.6	4.4	4.3	4	3.5	4.5	3.8	4.6	4	4.5	3.5	4.2	3.8	4.4	22.7	26.2
11	3.7	4.4	3.7	4.5	4	4.5	3.6	4.6	3.5	4.7	3.5	4.5	3.7	4.5	22	27.2
12	3.2	4.4	3.8	4.5	3.2	4.7	3.5	4.5	3.8	4	3.6	4.6	3.5	4.5	21.1	26.7
13	4	4.5	4.5	4.1	3.5	4.2	4	4.5	3.5	4	3.6	4.5	3.9	4.3	23.1	25.8
14	3.2	4	3.6	4	4.5	4	3.6	4.5	4.5	4	3.6	4	3.8	4.1	23	24.5
15	3.2	4.7	3.8	4.5	4	4.5	3.5	4	4	4	3.6	4	3.7	4.3	22.1	25.7
16	3.6	4.2	4.2	4	3.8	4.3	3.8	4.5	4.2	4.5	3.6	4	3.9	4.3	23.2	25.5
17	3.4	4.2	4	4.5	3.6	4.5	3.6	4	4	4.3	3.5	4	3.7	4.3	22.1	25.5

Source: Rui Wang (2024)

## Comparative Analysis of Pre-Test and Post-Test Results

The analysis of pre- and post-test results provides compelling evidence of student growth across multiple dimensions of chamber music performance. A series of comparative bar charts visually represent the improvements made in six core areas: intonation and timbre expression, rhythm and musical phrasing, coordination and rapport, personality and creativity, technical precision, and musicality and expression. The data, supported by statistical testing, validates the overall effectiveness of the instructional design and pedagogical strategies employed throughout the course.

**Intonation and Timbre Expression:** The first comparison reveals a clear and consistent increase in post-test scores for all students in the area of intonation and timbre. Students who began the course with lower initial scores—such as Students 11, 12, 14, and 15—demonstrated the most substantial improvement, indicating that the course successfully addressed pitch accuracy and tone quality. Student 15, in particular, showed the largest gain, reflecting significant growth in technical control. Meanwhile, those with stronger initial skills—like Students 4, 5, 7, 8, and 9—also improved, refining their tone blending and expressive shading.

**Rhythm and Musical Phrasing:** In rhythmic control and phrasing, all students showed notable progress, confirming the effectiveness of rhythm-focused exercises and ensemble synchronization training. Students 2, 10, 14, and 15 made the most dramatic strides, moving from moderate to high levels of rhythmic stability and expressive phrasing. Students with already strong rhythmic abilities, including 3, 4, 8, and 9, continued to advance, particularly in phrase shaping and stylistic articulation. While some students—such as 11 and 13—still trailed slightly behind, their post-test gains suggest potential for further improvement through continued targeted rhythmic instruction.

**Coordination and Ensemble Rapport:** Improvements in coordination and ensemble rapport were evident across the board. Students 7, 10, 11, and 12—who initially struggled with ensemble cohesion—demonstrated the greatest gains, benefiting from structured group rehearsals, cueing strategies, and active listening activities. Students with higher starting points, including 2, 5, and 9, also progressed steadily, refining non-verbal communication and musical synchronization. Although Students 10, 11, and 12 still ranked slightly lower than peers in post-test scores, their growth confirms the foundational progress made through collaborative learning.

**Personality and Creativity:** In terms of personality and creativity, the course made a meaningful impact on students' artistic individuality. Post-test scores reflect a widespread increase in interpretative confidence and expressive freedom. Students 7, 9, 10, 12, and 15 showed the most significant transformations, having started with modest pre-test scores but emerging with strong creative voices through improvisation, guided interpretation, and storytelling activities. Even students who began with higher confidence—such as 1, 3, and 5—refined their personal style further. Some students, including 10, 11, and 12, still have room to grow, particularly in developing deeper emotional range and phrasing flexibility.

**Technical Precision:** Technical precision also improved significantly. Students 7, 10, 12, and 14 showed the most marked advancement, benefiting from focused technical drills and reinforcement activities targeting articulation, intonation, and coordination. Those with solid initial technical skills—like 3, 4, and 9—continued to sharpen their control and execution, enhancing performance fluency. Students with lower pre-test scores, including 6, 11, and 13, demonstrated steady improvement, confirming the value of targeted remedial instruction. However, students such as 13 and 17 may benefit from continued work on dexterity and accuracy in fast passages.

**Musicality and Expression:** Perhaps most striking was the improvement in musicality and expression. Every student displayed noticeable gains in dynamic shaping, phrasing clarity, and emotional communication. Students 10, 11, 12, and 14 made especially significant progress, indicating a strong response to the course's emphasis on interpretive coaching and emotional engagement. Students with already high musicality—such as 2, 3, and 5—further enhanced their expressive depth. Meanwhile, students 13 and 17, although improved, remain slightly behind their peers, suggesting that continued focus on tone coloring, rubato, and phrasing contrast would be beneficial.

**Statistical Validation: T-Test and P-Value Results:** The overall effectiveness of the chamber music course was further confirmed through statistical analysis using t-tests and p-values. These tests measured the significance of score changes across each performance dimension. In all six categories, the p-values were below the standard threshold of 0.05, indicating that the observed improvements were statistically significant rather than random variation. For instance, intonation and timbre expression yielded a p-value of 0.000 with a t-statistic of 4.086, reflecting a highly significant enhancement in students' pitch accuracy and tone blending. Similarly, musicality and expression showed a p-value of 0.000 and a t-statistic of 7.072, further validating the substantial emotional and stylistic growth observed throughout the course. Across all dimensions, the positive t-statistics and low p-values confirm that the instructional model—grounded in Project-Based Learning, Collaborative Learning, and Musical Intelligence Theory—was highly effective in driving measurable, meaningful student progress. This data not only quantifies individual improvement but also offers a robust, evidence-based foundation for future curriculum refinement.

## 5. DISCUSSION

### Addressing the Problems and Needs in Chamber Music Education

Current challenges in chamber music education in China are primarily rooted in rigid teaching models, a lack of curricular diversity, limited practical opportunities, and outdated educational resources. In classroom settings, excessive emphasis is placed on technical correction, often at the expense of fostering students' interpretive skills and creative expression. As Li Mingyue (2021) observed in *Reflections on the Current State of Chamber Music Education in China*, the prevailing instructional system tends to prioritize mechanical training over artistic development, ultimately limiting students' comprehensive musical growth.

The curriculum in many institutions still heavily favors traditional teaching approaches, with an overemphasis on technical drills and a narrow selection of Western classical repertoire. Zhang Wei's (2023) research underscores this imbalance, revealing that 83% of chamber music curricula are centered on Western works, while only 9.7% include original Chinese compositions. This disproportionate focus not only marginalizes native musical traditions but also curtails students' cultural confidence and creative thinking.

Moreover, the lack of efficient rehearsal planning undermines the quality of ensemble training and diminishes opportunities for meaningful instructor feedback. Many students struggle to develop strong ensemble skills due to insufficient stage experience and limited access to performance platforms. Additionally, the minimal integration of digital tools—such as multimedia resources and smart learning platforms—hinders autonomous and multidimensional learning. Without real-world performance exposure and technologically supported instruction, students face substantial barriers to artistic and professional advancement.

To address these issues, systemic reforms are necessary. Chamber music education in China must embrace modernized teaching models, incorporate local musical heritage, diversify instructional methods, and expand performance practices. Such changes are essential to cultivate musicians who are not only technically competent but also artistically innovative and globally aware.

### **Reforming Chamber Music Pedagogy Through PBL and Collaborative Learning**

The integration of Project-Based Learning (PBL) and Collaborative Learning represents a forward-thinking response to the limitations of traditional chamber music instruction. Conventional models tend to isolate technical mastery from ensemble communication, leaving students underprepared for the collaborative demands of chamber performance. In contrast, the PBL framework allows students to immerse themselves in complete musical projects from the score analysis and historical context to final public performance by integrating technical, theoretical, and expressive skills throughout the process.

Within this project-driven environment, Collaborative Learning plays a vital role. Fixed ensemble groups, rotating roles, peer feedback sessions, and simulated performance scenarios help students build a deep understanding of each part's responsibilities while developing auditory awareness and interpersonal sensitivity. These methods cultivate not only musicianship but also essential soft skills such as leadership, cooperation, and adaptability.

Reform must also occur at the curriculum design level. A modern chamber music program should feature a well-balanced repertoire that spans stylistic periods and cultural traditions. Time allocation should be optimized to ensure a healthy balance between rehearsal and theoretical study. Moreover, the integration of digital tools—such as virtual rehearsal platforms and multimedia analysis—can enrich the learning experience and support distance collaboration. Public performance opportunities should be increased to provide students with the professional experience necessary for real-world readiness.

Teachers, in this reformed model, take on the role of facilitators and coordinators rather than traditional demonstrators. By designing challenging musical tasks, offering timely feedback, and fostering a supportive team learning environment, instructors guide students toward deeper engagement and artistic ownership. This integrated approach not only enhances technical skills and ensemble coordination but also nurtures critical thinking, expressive freedom, and artistic innovation—competencies vital for students' long-term success in the music profession.

On a broader level, this pedagogical reform provides a useful blueprint for how music education can strike a balance between technical proficiency and artistic literacy, between individual growth and collaborative performance. Its implications extend beyond chamber music, offering valuable insights for educational innovation across the performing arts.

### **Evaluating the Effectiveness of the Teaching Model**

The comparison of pre- and post-test results provides strong empirical validation for the effectiveness of the integrated PBL and Collaborative Learning model in chamber music instruction. Across all six assessed dimensions of intonation and timbre expression, rhythm and phrasing, coordination and rapport, personality and creativity, technical precision, and musicality and expression—students demonstrated statistically significant improvement. The average score increased from 3.79 to 4.35 (a gain of 11.2 percentage points), underscoring the model's impact on both technical and artistic development.

These results align closely with Thomas's (2000) findings that PBL enhances knowledge retention and skill transfer in performance-based disciplines. The largest improvements were seen in technical precision (from 3.84 to 4.42) and personality/creativity (from 3.82 to 4.42), validating Johnson and Johnson's (1999) assertion that collaborative learning strengthens both technical competence and individual expression. One standout case, Student 15, improved coordination scores from 3.2 to 4.7, exemplifying Gillespie's (2001) view that peer feedback and role rotation significantly enhance ensemble synchronization.

Three key innovations emerge from these results. First, the project-driven structure bridges the longstanding gap between technical drills and musical interpretation, providing a more holistic learning experience (Thomas, 2000). Second, collaborative mechanisms empower students to become active agents in their learning, transforming passive absorption into engaged participation (Johnson & Johnson, 1999). Third, the integrated assessment system enables ongoing formative feedback, encouraging continuous artistic growth (Gillespie, 2001).

Moreover, the varying degrees of improvement across students highlight the model's flexibility in supporting both foundational skill development and higher-order artistic autonomy. The marked gains in creativity, for instance, suggest that the model excels not only at raising baseline competence but also at unlocking students' expressive potential, something often overlooked in traditional chamber music pedagogy.

In conclusion, the combined use of Project-Based Learning and Collaborative Learning offers a transformative approach to chamber music education. The model not only bridges

the gap between technical training and expressive performance but also fosters a learning environment that values autonomy, collaboration, and innovation. These findings support the broader application of this model and warrant further exploration into its long-term impact on professional music development.

## 6. RECOMMENDATION

### Recommendation

This study recommends a novel approach to chamber music education by integrating Musical Intelligence Theory, Project-Based Learning (PBL), and Collaborative Learning into a comprehensive teaching model. By fusing these frameworks, the model develops not only students' technical performance but also their artistic expression, interpretive depth, and collaborative competence. Each chamber work is framed as a modular project, targeting dimensions of musical intelligence such as pitch accuracy, rhythmic precision, stylistic interpretation, and ensemble interaction. Through targeted aural training, expressive coaching, and interactive rehearsals, students cultivate both individual artistry and collective responsibility, moving from technical execution toward holistic musicianship.

The curriculum emphasizes structured yet flexible processes that shift students from passive learners to active participants. Fixed ensembles with rotating roles encourage students to understand different parts within a group, while peer evaluation promotes self-reflection, auditory judgment, and constructive feedback. The phased teaching design ensures a logical progression: initial score analysis and stylistic exploration, followed by tackling technical and coordination challenges, and concluding with expressive refinement and stage preparation. This task-driven method not only strengthens technical and interpretive skills but also embeds collaborative intelligence, critical listening, and evaluative thinking at every stage of learning.

A major strength of this model is its redefinition of assessment in chamber music education. Traditional evaluation often focuses narrowly on technical proficiency, but this approach introduces new indicators for ensemble communication, balance awareness, and coordination—skills vital to chamber music but frequently overlooked. By valuing these competencies alongside expressive and technical abilities, the model fosters a more holistic measure of musicianship. As a result, students graduate as not only capable performers but also thoughtful, expressive, and cooperative musicians equipped for both academic and professional demands.

Finally, this study recommends future innovation by integrating digital tools to enhance adaptability and reach. Intelligent assessment platforms aligned with Musical Intelligence Theory could provide real-time feedback, personalized practice strategies, and data-driven progress tracking. Such tools would enrich student learning, offer targeted support, and make the teaching model scalable to broader contexts. In this way, chamber music pedagogy can evolve in step with the needs of 21st-century musicians, blending tradition

with innovation. Ultimately, this model provides not only a transformative framework for chamber music instruction but also a blueprint for advancing performance education.

## 7. IMPLICATIONS

The findings of this study hold important implications for the future of chamber music education, particularly in conservatories and broader music institutions. By integrating Musical Intelligence Theory with Project-Based Learning and Collaborative Learning, the research demonstrates a shift from a technique-centered model toward a holistic, student-focused approach. This framework not only enhances technical mastery but also cultivates creativity, emotional expression, and ensemble sensitivity. Organizing instruction around complete musical projects mirrors real-world music-making, enabling students to take ownership of their learning while preparing them for diverse professional pathways in performance, education, and the creative industries.

Equally significant are the implications for curriculum design and teacher training. Educators must move beyond traditional roles as knowledge providers and embrace mentorship, facilitating discovery-based and collaborative learning. This requires new competencies such as designing interdisciplinary tasks, managing group dynamics, and implementing formative, multi-dimensional assessments. By emphasizing varied dimensions of musical intelligence—such as rhythmic awareness, interpretive depth, and cognitive analysis—educators can better support diverse learning needs and foster deeper engagement. In turn, students gain autonomy, flexibility, and broader musical understanding, equipping them for the demands of modern artistic practice.

Finally, the study highlights the need to modernize evaluation and integrate technology in chamber music instruction. Traditional assessments that prioritize technical accuracy overlook interpretive nuance and collaborative effectiveness; a balanced model assessing creativity, communication, and stylistic understanding provides a more accurate measure of student progress. At the same time, digital tools such as smart annotation, virtual rehearsal platforms, and intelligent feedback systems offer new opportunities for interactive and accessible learning. Together, these implications suggest that chamber music pedagogy can evolve into a dynamic, inclusive, and technologically enhanced model—one that nurtures technically skilled, expressive, and cooperative musicians ready for the challenges of the contemporary music world.

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