# Active and Collaborative Learning: A Theoretical Framework to Enhance Musical Performance and Learning Attitudes in College Students

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**Abstract**

This article reviews the application of active learning and collaborative learning in music education, focusing on their combined impact on students' musical performance skills and learning attitudes. Through an analysis of existing literature, this study identifies key theoretical perspectives and practical applications of these approaches. A general framework is proposed to guide educators in integrating active and collaborative learning strategies effectively. By synthesizing insights from previous research, this review highlights the potential of these pedagogical methods to modernize music education and address current challenges in fostering comprehensive student development. The study contributes to the field by offering a theoretical foundation and practical recommendations for improving instructional practices in diverse educational contexts.

**Keywords:** active learning, collaborative learning, musical performance skills, learning attitudes, instructional framework

## 1. Introduction

Music education in Chinese colleges and universities has been dominated by traditional teaching methods, concepts and contents, forming a single form of teaching, which is difficult to adapt to the development needs of modern music education in colleges and universities (Zhang & Rodsakan, 2023). Despite many attempts and efforts, new approaches to teaching and learning have not been given enough attention and importance, and have sometimes even been dismissed or ostracized. Traditional teaching approaches limit the development of students' critical thinking and creativity, resulting in unsuccessful attempts at interdisciplinary integration (Wang, 2024; Cheng & Liang, 2023). They possess many disadvantages, such as the lack of relevance of teaching materials and insufficient specialization of teachers, resulting in modern music culture being simply supplemented in teaching and hindering the development of music education in colleges and universities (Hebert & Hauge, 2019). Similarly, in Western modern music education, the teaching content is mostly focused on impressionistic styles, and the curriculum design is difficult to meet the diverse needs of students.

Music is a process of transforming a cultural form into an art form with diversity and inclusiveness, which determines a strong connection between music education and other disciplines. However, music education in traditional colleges and universities tends to focus too much on the music itself and neglects the integration and collaboration of pedagogical approaches, limiting its development to a single level (Kratus, 2007). Modern Chinese music education curriculum reform requires the classroom to be flexible, researchable, constructible, generative and innovative (Wang, 2021). However, the music education model in colleges and universities, which is dominated by traditional teaching methods, is no longer able to meet the requirements of the modern curriculum reform, and its problems include neglecting the interaction and communication between teachers and students, ignoring the cultivation of students' autonomy and creativity, as well as failing to satisfy the needs of students' all-around development, which ultimately represses students' subjectivity and makes it difficult for them to give full play to their potentials

The twenty-first century is an era of unknowns, emphasizing creativity and intellectual competition. Rieckmann (2018) realizes that the goal of education has shifted from merely imparting knowledge to developing human beings who are equipped with innovative thinking, collaborative skills, and a sense of lifelong learning. Thus, teachers need to help students develop a sense of independent learning, as well as the ability to cooperate and communicate. In all music instruction, students are the main body of learning, and teachers cannot replace students to feel, observe, analyze and think, not to mention experiencing the emotions and expressions of music firsthand (Bowman, 2004). That means that both the acquisition of knowledge and the cultivation of emotion and will must be accomplished through students' own learning and inquiry.

The introduction of active and collaborative learning has brought a new dynamic to music teaching and learning. Active learning emphasizes students' active participation in learning and prompts them to construct knowledge through inquiry and practice (Hood Cattaneo, 2017). For example, some young teachers prefer to allow students to explore independently to gain a deeper understanding of their contextual, emotional, and technical elements (Burnard, 2007). Collaborative learning is based on teamwork and interaction to accomplish a common task, which requires students to work well with each other. In teaching practice, teachers often organize group ensemble or arranging activities (Stanley, 2012). In fact, beyond the demands of solo performance, student teamwork enhances the integrity and coordination of musical expression. Collaborative learning also provides students with diverse perspectives and inspirations that stimulate more innovative musical expressions. This teaching strategy that combines initiative and interaction enriches the format of the music classroom.

This research intends to provide new ideas for the development of music education in colleges and universities through theoretical analyses, exploring how to diversify teaching forms and modernize teaching objectives by introducing active and cooperative learning methods, so as to cultivate innovative musical talents who can meet the needs of the twenty-first century. It not only solves the bottlenecks in the current music education in colleges and universities, but also provides a reference for the future reform of music education curriculum design and teaching mode.

## 2. Theoretical Foundations of Active and Collaborative Learning

### *2.1 Definition and Theory of Active Learning*

Active learning refers to the fact that students view learning as an active behavior that satisfies their personal needs. It is centered on the continuous improvement of knowledge structure through active participation, self-management and behavioral adjustment (Rui et al., 2024). According to Lombardi et al. (2021), active learning emphasizes the student's leading role more than passive learning and requires them to be actively involved in the construction of knowledge rather than simply receiving information. Active learning focuses on making learning an intrinsic need to achieve greater efficiency and better results through sustained effort, self-evaluation, and adjusted behavior. Morosan et al. (2017) indicated that this approach is learning-outcome-based and, simultaneously, focuses on the development of student competencies, such as time management, self-discipline, and independent thinking.

Behaviourist psychologists argue that self-directed learning involves three main processes: self-monitoring, self-instruction, and self-reinforcement (Pilling-Cormick & Garrison, 2007). Self-monitoring is the process by which learners examine and evaluate their educational development, identify difficulties, and make appropriate adjustments to attain their goals. Self-instruction is related to specific activities used, such as planning, selecting strategies and techniques, and improving the learning environment. Self-reinforcement is maintaining motivation by rewards or reflection, such as encouraging oneself with positive results or learning from mistakes, in order to keep learning going.

The theory of active learning relies on the constructivist perspective, which emphasizes the fact that learners gain knowledge through practical experience and exploration. Under constructivism, knowledge cannot be transferred from one person to another, it is obtained through the dynamic interaction between the learner and their environment. As a result, advocates of this theory argue that learning is a continuous process of reorganization and expansion of cognitive structures, where self-directed learning is a means of self-regulation and adaptation (Morris, 2019).

Learners will have to actively choose strategies and regulate their efforts according to ability and task requirements. It implies they must know why, what they can learn, what they need to learn, and how. In short, they have to be sure about the answers to 'why', 'what', 'what' and 'how', and to make an adjustment during learning. Bossard et al. (2008) have concluded in their experiments that learners can better tackle complicated situations and enhance their efficiency with this modulation. Active learners are generally more enthusiastic learners and think more deeply. They

can explore new areas and continually improve their own capabilities. This approach is particularly important in music education. In order to increase their overall musical literacy, students must practice technical mastery of their craft in addition to gaining an understanding of both the emotional and rational spheres of music pieces.

According to Piaget, education is based on the provision of the implements for new discoveries and practice and exploration (Waite-Stupiansky, 2022). Students need to deepen their understanding through practice and feedback. For example, chemist ilya prigogine, Nobel Prize winner, was so struck by the chemical experiments he could not take his mind off them. Then he shifted to music in science field (Prigogine, 2011). An extraordinary significant fact on top was that Piaget pointed out that active student learning indeed triggers an increase in what one might visualize as their students' successful behavior. Through solving problems, students get a sense of achievement, and it motivates them further so that the effort to learn is simulated. Students interested in music education could analyze the context and emotional atmosphere of a piece and bridge theory and practice for depth of learning.

Vogotsky's concept of the zone of proximal development (ZPD) emphasizes the interconnectedness between the individual learner and the setting. A learning theory recommends that with the necessary assistance, learners are capable of achieving more than what they are otherwise able to do (Eun, 2019). The ZPD stands for a range opening the gap between what a learner can do independently and what he might do with the help of his peers and teachers. Students are able to complete objectives which are out of their reach with the appropriate assistance. In active learning, the students as well as the surrounding are essential. For example, in music instruction, teachers can simplify difficult concepts or provide other forms of assistance to students so a particular problem can be solved. Such interactions are said to be effective in improving the performance of students and even allowing them to be confident in the performance of higher and more complex tasks (Borthick et al., 2003).

### *2.2 Definition and Theory of Collaborative Learning*

“Learning to live together” is one of the four fundamental pillars of education for the 21st century as advanced by the United Nations Educational, Scientific and Cultural Organisation (Delors, 2013). Collaborative learning is said to be that which is done in small groups with the target of successfully working on learning tasks by assisting each other. For example, as this process unfolds, students achieve their individual and group learning objectives as they share and support each other (Nokes-Malach et al, 2015). The phenomenon of collaborative learning first began to emerge in the United States in the 1970s, and from the mid-1970s through the 1980s it evolved rapidly as one of the instructional philosophies and strategies (Hertz-Lazarowitz & Zelniker, 1995). In its essence collaborative learning is that angle of learning which perceives learning as a social event and seeks to enhance learning through interaction and co-operation. Students have been found to derive other benefits from team activities such as support and encouragement getting motivation to learn and having positive cognitive and affective consequences.

Students are always assigned groups according to their gender and ability so that they can work together to solve problems. In accomplishing tasks, students need to use a variety of methods, such as looking up information, designing solutions, and discussing responses, thus developing problem-solving skills (Healy et al., 2018). At the same time, students' thinking will be practiced and improved in the process, ultimately achieving both knowledge and ability progress. Burns et al. (2014) argued that collaborative learning also allows students to be subjects in the classroom rather than passive learners. This model emphasizes student autonomy and interaction, and encourages group members to divide up the work, share resources, and work together to accomplish learning goals.

Dewey's theory of “experience as education” compares the learning process to a “constructive dialog”. According to him, learning is an interactive process in a community of knowledge where students construct knowledge through interaction and dialog in the community (Hutchinson, 2015). The teacher's task is to create the right environment to organize students to participate in a learning community and engage in effective dialogue. Such a process can help students to acquire knowledge and at the same time improve their cooperative and social adaptation skills. Motivation theory suggests that in collaborative learning, students can only achieve their individual goals by reaching goals in a group. This structure motivates group members to help and encourage each other to work together on common learning tasks (Johnson & Johnson, 2009). Slavin states that the success of a group depends on the performance of each member, and this association motivates members to learn more actively (Abrami & Chambers, 1996). Well-designed reward mechanisms can enhance students' motivation to learn and make them feel a sense of accomplishment in collaboration.

The importance of group cohesion is further illustrated by social cohesion theory, which posits that the impact of collaborative learning on learning outcomes is largely dependent on group cohesion (Yoon & Leem, 2021). Students help each other in their studies because they care about each other and want everyone in the group to succeed. Although both social cohesion theory and motivation theory emphasize the importance of motivation to learn, they

have different emphases. Motivation theory focuses on students' behavior of helping each other for personal gain, while social cohesion theory focuses more on students' concern and responsibility for the group. Dörnyei (1997) noted that group formation and subsequent assessment activities in collaborative learning can enhance students' sense of belonging, which further enhances learning.

Collaborative learning has significant advantages over traditional teaching. O'Donnell & Hmelo-Silver (2013) found that collaborative learning improves learning more than solitary or competitive learning, especially when solving complex problems. Slavin's (2017) study showed that collaborative learning helps students develop social skills such as the ability to express opinions, listen, explain, and resolve conflicts. These skills are reinforced during team activities and provide a foundation for students' future roles in society. Cooper et al. (1994) found that students were more easily integrated into the curriculum and peer relationships when completing tasks in small groups, and that this integration improves students' thinking and problem-solving skills. Bligh's (2000) study showed that, compared to traditional classrooms, the students who participated in collaborative learning were more satisfied with the learning experience and rated the course higher. Kulik & Kulik (1991) further noted that this positive experience enhances students' identification with the course while stimulating a higher level of interest in learning.

### *2.3 The Integration of the Two in Music Education*

Active learning integrated with collaborative learning is a deep learning approach that has been successful in other areas of education (Pedersen, 2010). Therefore, this approach is also likely to yield good results in music education. This combination can simultaneously fulfill the individual role of active learning and the team role of collaborative learning. It makes music education more effective through the construction of knowledge, the experience of emotion and the enhancement of skills. In active learning, students can deepen their understanding of a musical piece through reflection and adjustment, such as analyzing the melody or rhythm in a score. Collaborative learning provides students with an opportunity to interact with their peers, allowing them to further their musical understanding through feedback. For example, when students are involved in a group ensemble, active learning helps them complete their vocal exercises, while collaborative learning allows them to learn to achieve balance in their overall performance through communication (Luce, 2001).

From the psychological point of view, the combination of active and collaborative learning can motivate students and find a balance between intrinsic and extrinsic motivation (Chen & Law, 2016). Active learning allows students to deepen their understanding of music through exploration and feedback, while collaborative learning enhances extrinsic motivation through interaction with group members, such as affirmation from peers or achievement of group goals. This combination of internal and external motivation is particularly important for music learning. Music learning requires students not only to master technique, but also to incorporate emotional and artistic aesthetics. For example, Zheng et al. (2024) argued that students can utilize active learning in choral instruction to enhance the expressiveness of their individual voices, while Freer (2006) argued that better choral results are achieved by adjusting pitch and rhythm with peers during group rehearsals.

In the creative practices in music education, this combination can also help students solve complex problems. Music composition and performance require students to have critical thinking and problem-solving skills, and the development of these skills requires a combination of independent learning and teamwork (Smialek & Boburka, 2006). Sometimes it works better to practice alone and then integrate into a group. For example, in music composition, students can complete their own theme designs through active learning, while collaborative learning allows them to share ideas and improve their work with their peers in a group. While active learning helps students to reflect on the soundness of their creations, collaborative learning makes the work better through collective discussion and resource sharing. In addition, collaborative learning fosters a sense of social responsibility and teamwork, especially in performances that require group presentations where students need to work together to accomplish tasks through trust and cooperation.

## 3. Design of Teaching Approaches Based on Active and Collaborative Learning

The teaching design is based on the classical music work Canon in D as an example. The teaching content includes the analysis and expression of musical emotion, the improvement of playing skills and the cultivation of cooperation ability. The teaching objectives are divided into three parts: first, knowledge and skills, students need to master the basic principles of emotional expression of the piece and combine them with performance skills; second, process and method, through group cooperation to complete the analysis of the piece and performance practice, to improve the ability of active learning and teamwork; third, affective attitude, to cultivate the students' interest in musical

expression and sense of cooperation.

Instructional design needs to take full account of the characteristics and needs of the target learners. It is appropriate for use with advanced students who have mastered the basic fundamentals of music theory and performance, but are relatively weak in emotional expression and teamwork. They are interested in hands-on courses, but are unfamiliar with collaborative learning methods and need clear guidance and encouragement from their teachers. Teachers need to arrange the necessary learning resources, such as sheet music, demonstration videos and sentiment analysis templates, in the preparation stage of teaching to help students get into the learning mode as soon as possible. Heterogeneous grouping further ensures that the musical fundamentals and expressive abilities of the members of each group complement each other and increase the effectiveness of group work.

During the implementation process, the course content is divided into three tasks to help students master musical performance skills and emotional expression from simple to in-depth. This lesson is introduced by playing two videos of Canon in D played in different styles as an introduction to stimulate students' interest. Then, the teacher asks the students to think about “which kind of performance can express the emotion of the piece better”. Then, the teacher assigns the task and the students work in groups to complete the following three sections: The first is emotional analysis, students fill in the analysis template with the characteristics of the piece, clarify the focus of the emotional expression of the piece, and then practice alone; the second is segmented performance, group members divide the work of practicing different segments, and adjust the way of playing through discussion and audition; the third is the complete performance, groups complete the full performance of the piece, and the group evaluates each other and puts forward the suggestions for improvement. During the teaching process, the teacher visits the classroom, provides necessary guidance and encourages students' participation with positive feedback.

To further enhance the proposed instructional design, modern technologies such as artificial intelligence (AI), virtual reality (VR), and online collaboration tools can play a pivotal role. AI-powered tools can provide personalized learning experiences by analyzing students’ performance and adapting tasks to suit individual needs. For instance, AI can assist in emotional analysis of musical pieces by suggesting interpretations based on historical and theoretical data, offering students a more nuanced understanding of the work. VR environments can immerse students in simulated concert scenarios, allowing them to practice performance skills in lifelike settings without the pressure of a live audience. Online collaboration platforms, such as digital score-sharing applications or real-time editing tools, can facilitate group work, enabling students to collaborate on arranging or performing pieces despite physical distances. These technologies not only enrich the learning experience but also address limitations such as resource constraints and time shortages, thereby optimizing the teaching and learning process in music education.

Evaluation and feedback are an important part of instructional design and are useful in consolidating and improving student outcomes. The course prioritizes the use of formative assessment, both in groups and individually. The group evaluation includes the accuracy of emotion analysis, the overall effect of playing and the efficiency of cooperative learning; the individual evaluation is conducted by the teacher who observes and records the performance in the classroom, pays special attention to the students' participation and ability enhancement, and makes suggestions for improvement after the class. When the course ends, the teacher organizes a discussion between teachers and students to summarize the learning content and help students reflect on their gains and shortcomings, so as to lay a good foundation for subsequent learning.

## 4. Challenges and Suggestions

There is no doubt that the introduction of active and collaborative learning into music education in colleges and universities will encounter many problems. These problems mainly include insufficient teacher competence, obvious student differences, limited resources and inadequate evaluation systems. Firstly, the lack of teacher competence is an obvious problem. Many music teachers in colleges and universities were trained mainly in traditional teaching methods during their student days, and they do not know enough about the theories of active and collaborative learning, while lacking systematic training in this area (Huanyuan, 2022). It makes some experienced veteran teachers sceptical of new teaching methods, while new teachers may have problems in designing tasks due to inexperience, such as tasks designed to be too simple or too difficult, leading to a decline in learning outcomes. Second, student performance in collaborative learning varies widely. Some students who excel in the traditional classroom may not be able to adapt to the new mode of learning and their performance slips instead (Daymont et al., 2011). Other introverted students may be less involved in group activities, and the effectiveness of team learning suffers as a result. Thirdly, the lack of resources and time is also a real problem. Active and collaborative learning requires sufficient time for task design, classroom facilitation, and feedback of results, but time is usually limited in

music programmes, while resources such as musical instruments and rehearsal space are inadequate, which puts a lot of pressure on teachers to teach in practice. Finally, the problem of the evaluation system has become more prominent. Traditional music education pays more attention to the assessment of skills, while active and collaborative learning pays more attention to the quality of the learning process and teamwork, but due to the lack of clear quantitative standards, the evaluation is easily affected by teachers' subjectivity, making it difficult to comprehensively reflect the actual progress of students (Conway, 2020).

The following four approaches can be taken to address these issues. Firstly, teacher training should be strengthened. Through regular training programmes, observation of teaching demonstration lessons or interdisciplinary exchanges, teachers can be better equipped with theoretical and practice learning methods for active and collaborative learning, such as how to design appropriate task objectives and how to deal with group conflicts. Second, students' grouping strategies should be optimised. Heterogeneous groupings are made according to students' abilities, interests and personality traits, while the division of labour for each individual is clarified and different roles are rotated to ensure that every student can participate in teamwork and to avoid situations in which certain students are overly proactive or completely ignored. Thirdly, it is necessary to increase the investment in teaching resources. Schools should provide music programmes with more musical instruments, larger rehearsal spaces and quality online learning resources to meet the demand for active and collaborative learning in the teaching and learning environment. Fourthly, the evaluation system should be improved. Evaluation combines process and outcome evaluation, focusing both on students' participation in the learning process and on the completeness and performance effects of the final outcome. At the same time, student self-assessment and group mutual assessment can be introduced to fully reflect students' learning performance.

## 5. Conclusion

In this article, we reviewed the theories of active and collaborative learning respectively and explored the application of a combined teaching approach of the two in music education to provide a general framework of analysis for educational researchers. We recognise the important role of this pedagogical approach in enhancing students' musical performance skills and attitudes to learning, which provides us with an opportunity to review some examples of practice in this area to validate the broad applicability of this framework. Each step and element of this framework is able to cover the key content and objectives involved in actual teaching and learning. The results of this paper can help researchers to design teaching models based on active and collaborative learning more efficiently.

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