



Deep Learning Perspectives in E-Learning Analyzing Music Teaching Methods within Core Literacy Context

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Abstract: Core literacy is comprehensive literacy, and the personal literacy students can improve to adapt to society can be summarized as one core literacy. Forming core literacy in the teaching stage is one of the most critical aspects of implementing moral education in schools. A music teaching model that focuses on core literacy is the key to improving the quality of music teaching. During deep learning, students do not stop at the simple application of knowledge points but use their learned music knowledge to solve various music problems in specific learning situations created by teachers. In this paper, we study music teaching in the context of core literacy based on deep learning. We put forward our personal views on the reform of traditional music teaching methods, hoping to help people concerned about music teaching reform.

Keywords: deep learning, core literacy, music teaching, E-Learning Analyzing.

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1 INTRODUCTION

In recent years, the education industry has developed rapidly, taking basic skills as the material form of party class teaching and an external form of expression, linking the macro teaching concept with the talent development goal. Exploring the prospect of music teaching reform based on essential knowledge can improve the quality of music teaching and students' interest in music learning to a certain extent [21]. Therefore, to optimize music teaching in primary schools, it is necessary to analyze the reform of music teaching from the perspective of in-depth learning of basic skills [9].

Deep learning, or deep learning, is a concept proposed by American scholars for students' shallow learning. The idea of deep learning appeared in 1976 and has been continuously improved and updated to form today's deep learning system [12]. When deep learning was examined, it significantly impacted the field of intelligent information. In its gradual improvement, today's deep learning is also essential in the education industry [25],[10]. In China, deep learning started in 2005.

[26] Deep learning in Chinese is defined as critically learning new and correct ideas under the prerequisite of understanding learning and combining the new ideas with the original cognition in the learning process. The already acquired knowledge can be applied to other decisions and problems through knowledge transfer. The national deep learning project team subsequently refined the concept of deep learning, a teacher-led full engagement of students in challenging learning topics, during which students will gradually acquire core knowledge of the subject and develop positive motivation to learn [11].

The Organization for Economic Cooperation and Development has studied core literacy exceptionally profoundly, and the core literacy it proposes includes the ability to use external forces, communicate within a group, have self-awareness, and possess other skills [22]. The core literacy has been gradually improved in the process of development of the European Union to become a core literacy that includes eight systems, such as native language and foreign language communication. The understanding of core literacy varies from country to country. In China, the three main directions of cultural foundation, autonomous development, and social participation are summarized at the level of core literacy, which can enable students' abilities to be better developed through a careful division of core literacy [23].

2 RELATED WORK

The music teaching method is discussed through the approaches and perspectives of speech rhythm, breathing, voice training, and music localization, which provides a reference for the diversity of teaching methods in the classroom of high school "singing" modules [8].

The Kodály Method - Comprehensive Music Education is a systematic introduction to Kodály's ideas of music education, including the Corwin gesture, rhythmic and chant intervals, and first-tone chanting, which are helpful for the development of aesthetic perception of music and aids in the rise to cultural understanding. These ideas help develop an aesthetic perception of music and aid cultural understanding [16]. In [5], they interpret music from a philosophical perspective, focusing on the "inner nature" of music and the "authenticity" of the aesthetic experience. This idea led this paper to look at the teaching of the "singing" module from the perspective of aesthetic perception of music. This has contributed to the development of this paper's vision and the enrichment of teaching methods. In [17], it is mentioned that singing is the human body as a musical instrument, and it talks about the structure of the human body, the vocal cords, the form, breathing, and vocalization. It plays a role in assisting this paper in scientifically studying the characteristics of high school students' singing and the attention to singing styles [1]. In [3], they systematically introduce philosophical considerations in implementing the school music curriculum and the need for music education to focus on music practice activities. The "Singing" module is compulsory and focuses on improving students' core music literacy through singing activities. This book gives us a great deal of support in implementing the "singing" module into the music classroom through practical music activities.

These music education systems and approaches to teaching singing are based on different perspectives and dimensions, but ultimately, they are based on music practice. The "singing" module, as the most critical module of music practice, has the most comprehensive coverage and significant universal value and, therefore, deserves to be studied. The results of these studies provide some insight into implementing the "singing" module in this paper, allowing us to gain a deeper understanding of singing and its humanistic connotations [2]. The teaching theory of [6] provides theoretical solid support for the teaching practice of the "singing" module in high school music classes. In his book *Music Pedagogy in the General School*, he mentions that "adolescence is a period of rapid physical and intellectual development" and that high school students are at a particular age when they have a strong desire for knowledge. They have their ideas and opinions about the aesthetics of music. They use their musical attitudes to express music and may even

create new music. High school students can perceive the beauty of music in their singing and experience the emotional and humanistic connotations behind it.

3 EXPLORATION OF MUSIC TEACHING METHODS BASED ON DEEP LEARNING IN THE CORE LITERACY PERSPECTIVE

3.1 Deep Learning Theory

Deep learning is the primary way to develop students' core literacy, which differs from shallow learning, as shown in Figure 1.

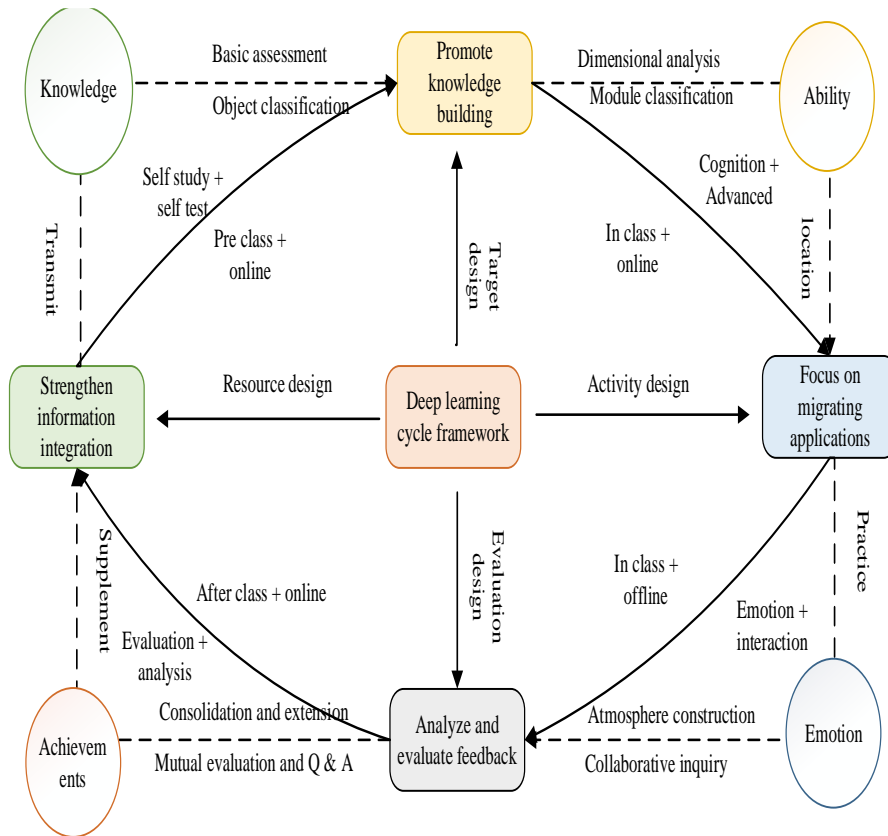


Figure 1: Deep learning ability cycle training model.

The model contains four modules, and each module's teaching purpose and ability training form a virtuous teaching cycle ecology through a gradual first and last correspondence.

With the help of teachers' guidance, students build "emotion" and "cognition" in three dimensions: depth of discipline (core literacy, teaching effectiveness), depth of thinking (anchoring higher order, teaching breadth), and depth of interaction (learning style, teaching temperature) from the aspects of perception, thinking, emotion, and will. Teachers guide and assist students in fully participating and using their feelings to understand the music learning process, master music knowledge and skills, acquire appropriate learning methods and develop motivation and values (See Figure 2).

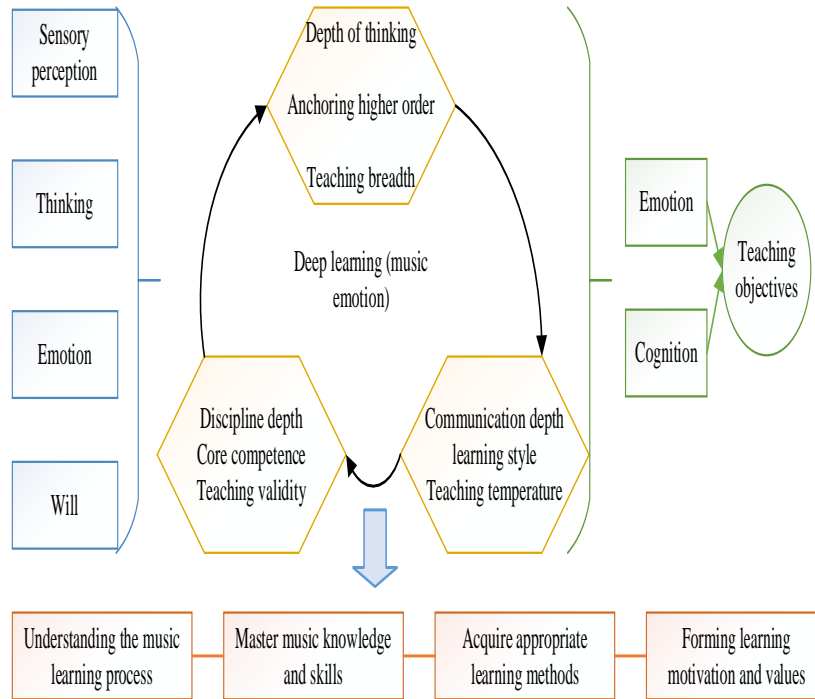


Figure 2: Music deep learning architecture.

Emotion is one of the basic features of aesthetic education, which exists in aesthetic activities such as feeling, appreciating, expressing, and creating. As a carrier of emotions, the process of music reflects the expression, impact, catharsis, and communication of emotions.

Although music as a carrier of emotions is called "the most emotional art," not every student can fully feel and experience its aesthetic emotions because of its non-semantic nature. Students must go through mental activity, acoustic transformation, and imagination and attempt to express themselves in music, i.e., "perception to reason" and "perception to cognition." Emotions and feelings need to be expressed through the body, and experiences come from everyday experiences and feelings. In addition, the ability to "empathize" and "put oneself in the place" in daily life is closely related to the "feeling experience" and "imagination and association" in music emotion. Teachers can promote the "exploration and expression" of music emotions in music teaching (See Figure 3).

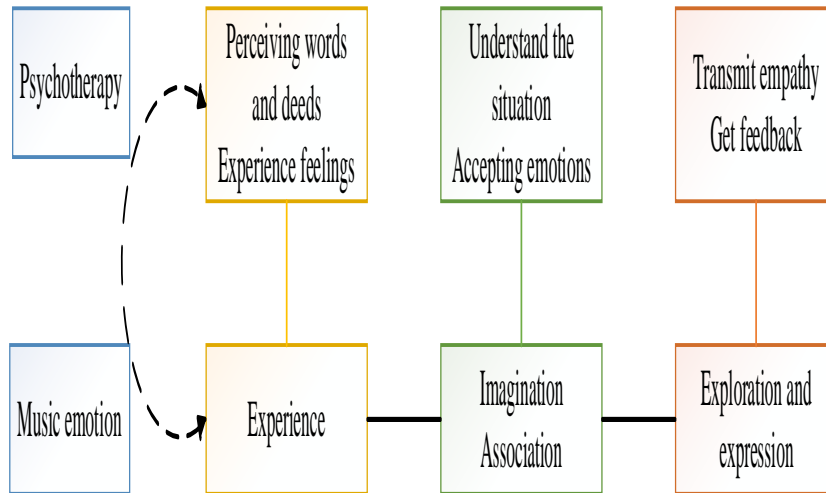


Figure 3: The Association between psychological empathy and musical emotion.

Concerning the requirement of "encouraging students to express their independent feelings and opinions about the music they listen to" as proposed in the Compulsory Education Music Curriculum Standards, this paper takes a student-centered approach based on the classroom, breaks the teaching barrier, relies on psychology's "empathy" and other related knowledge, and integrates it into music emotion teaching; adjusts and reconstructs the teacher-student interaction, establishes the "empathy" connection, generates emotional bonds, and forms a "dual integration." In this paper, we take a student-centered approach and break the teaching barrier, relying on the knowledge of "empathy" in psychology and other related knowledge, integrate it into music emotion teaching, adjust and reconstruct the teacher-student interaction, establish "empathy" association, generate emotional ties, and form a "dual-integration" teaching.

Specifically, this paper attempts to divide music emotion teaching into three steps such as "listening and thinking," "imagining and associating," and "expressing and exploring." It correlates them with the "awareness, experience," "acceptance, understanding," and "transmission and feedback" of psychology. In this paper, we try to divide music emotion teaching into three steps such as "listening and perceiving," "imagining and associating," "expressing and exploring," and "perceiving and experiencing," "accepting and understanding," "transmitting and giving feedback" in psychology. The "empathic" relationship between teachers and students is "put yourself in the shoes," "empathy," and "two-way mirror," and the design of cascading progressive teaching. At the same time, it also mobilizes students' perceptions, thinking, and emotions. It will participate comprehensively, leading to deep learning of "emotion" and "cognition" and laying the foundation for forming core literacy (See Figure 4).

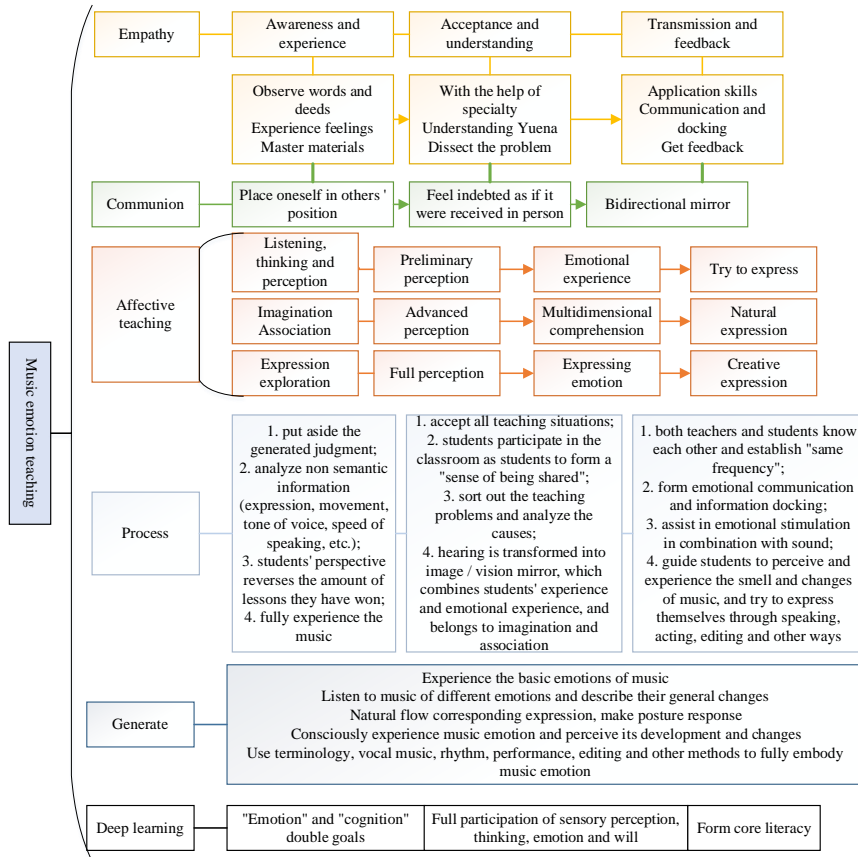


Figure 4: Deep learning design for teaching music emotion.

3.2 Blended Music Teaching Application Under the Vision of Deep Learning

1. Resource design: strengthen information integration

Music teaching is an interdisciplinary subject, and its course content has the characteristics of a "wide range of points and close connection." Under the current credit system reform and gradual reduction of course hours, teaching contents should conform to students' cognitive growth law and meet the dynamic needs of discipline frontier and social development. Therefore, most teachers always want to teach the complete teaching content in a detailed manner to avoid omissions, which will undoubtedly put enormous learning pressure on students in a limited time, forcing them to do everything, seemingly busy. Still, the quality of learning could be better and worrying. Therefore, teachers should realize that learning from shallow to deep is a continuous process. They need to optimize the information by analyzing the difficulty level and primary and secondary relationships of the resources based on respecting the existing school hours, arranging and establishing content frameworks and learning paths that can be carried out asynchronously and step by step, creating a multi-channel information environment with human-technology interaction and effective delivery, to seamlessly connect when using, quickly and smoothly extract, and promptly solve when in doubt [22],[23]. When in doubt, the answer is timely [22],[23]. This can turn learners' external motivation to learn internally, stimulate their interest in learning, cultivate their self-learning ability, and master

the knowledge and skill base required for classroom teaching activities more systematically before class.

The teacher derived a statistical chart of students' academic characteristics in the pre-class survey, as shown in Figure 5. It was found that more than 79% of the students had an excellent professional foundation, curiosity, information literacy, and application level and had the essential ability to accept blended music teaching. Therefore, based on the 90-minute (two-hour) unit of study, the lesson plan, lesson materials, teaching diary, and self-assessment exercises were analyzed and reorganized, and 60% of the unit of study time was set up as shown in Figure 6, with several easy to difficult stages in the form of learning tasks, interactive seminars, case studies, presentations of works, and summaries of diagrams that could be easily visualized in the classroom. The student can use the learning tasks in their own way. Students can choose flexibly and watch repeatedly according to their learning situation and personal wishes, and gradually complete the pre-study, test questions, and questionnaires and review and consolidate them. At the same time, they can also make suggestions, answer each other's questions, and form groups freely in the discussion forum to share and exchange their learning experience, experiences and results. Teachers can also observe in real-time in the platform to finely manage and guide learners' learning behavior and thinking status to avoid students losing interest and goals due to the backlog of questions.

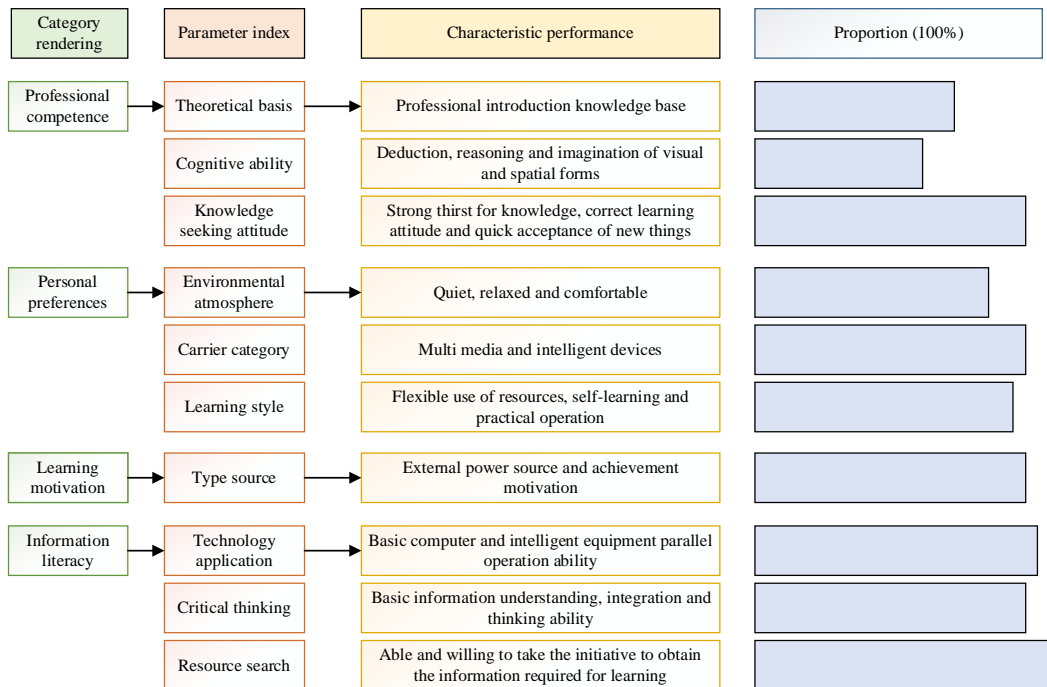


Figure 5: Statistical chart of students' academic characteristics in the class.

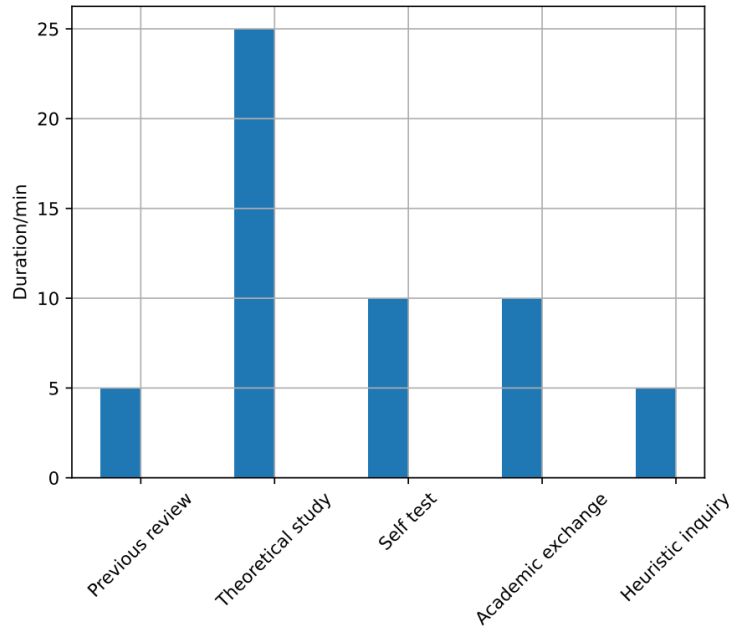


Figure 6: Online teaching session content arrangement.

The above initiatives enabled students to receive concise and accurate course information within the limited class time. Also, they reserved enough class time for teachers to explain key points and difficulties thoroughly. This reduced students' intimidation, relieved learning pressure, and guaranteed smooth and efficient classroom teaching. Nearly 78% of the students said that the integrated and refined teaching resources could effectively help them understand the key points and difficulties of the course and the relationship between knowledge, and they were able to study and review more independently and timely before and after class. In addition, the core contents taught by teachers in class can be better cut to the core and discussed in depth, greatly enhancing teaching participation.

4 CASE STUDY

According to the content of the textbook, this paper combines the three steps of teaching emotion with the three main approaches analyzed from the perspective of deep learning in psychology ("awareness, experience," "acceptance, understanding," "transmission. The three dimensions of deep learning ("depth of discipline," depth of interaction," and "depth of thinking") are correlated with the three main ways of deep learning perspective analysis ("awareness, experience," acceptance, understanding," and "transmission," Feedback"), and the teaching sessions are designed accordingly. This paper analyzes the deep learning perspective of music emotion teaching. In this paper, we analyze the lower elementary grades.

Students in lower elementary school are young, emotionally pure, with limited cognitive ability and lack of life experience, so they must try to experience music emotions, listen to different emotions, and express them through language descriptions and singing performances.

"This song is a lullaby with a beautiful lyrical tune and innocent and warm lyrics, depicting a quiet night with stars and moon in the sky and a baby falling asleep in its mother's sweet song in a lullaby.

Preliminary perception

Listen to the music for the first time, perceive the mood as a whole, and try to describe it in simple language, focusing on the first phrase (see example 1), which depicts the scene of the baby "sleeping in the cradle and smiling," to understand the basic mood. The teacher can use the "awareness and experience" in the deep learning perspective analysis to assist teaching by putting aside immediate subjective judgments about the students' learning production and carefully observing their learning status, paying attention to non-semantic information (e.g., mannerisms, movements, vocal tones, etc.), especially for students who are relatively slow and weak in music response and perception. Afterward, teachers switch to students' perspectives and empathize with them by observing the classroom in reverse, sorting out and analyzing students' learning generation to prepare for subsequent teaching adjustments.

Pedigree example 1:



2. Emotional experience

Create a situation and analyze the whole song. That is, through life experience, capture the music image, create the learning scene of "quiet night, bright moon and stars," and further guide students to perceive and experience the mood change of the music through teaching and singing.

At the same time, focus on analyzing the second phrase (see example 2) and imitating the rhythm of the song, imitating the "gentle cradle," imagining and feeling the gentle and light image of "mother" in the music, and trying to sing with a soft and beautiful tone.

Pedigree example 2:



Teachers can use "acceptance and understanding" in the deep learning perspective analysis to assist teaching, accept and understand the immediate state of teaching, and generate "being with ."Then, students are guided to use their imagination and association with their life and emotional experiences to transform their hearing into musical images and figurative scenes. At the same time, we focus on observing students who sing mechanically. Then, we switched to participating in the classroom as students in reverse to sort out the immediate teaching problems and analyze the causes.

3. Try to express

Sing the song and try to match it with your favorite movements to express the mood of "Sweet Dreams ."At the same time, focus on creating the third phrase (see example 3) to describe the scene of the mother gently lulling the baby to sleep and the baby sweetly falling asleep, and choose a suitable classroom instrument, listen to the tone and adjust the intensity to accompany the piece.

Pedigree example 3:



Teachers can use the "transfer and feedback" in the deep learning perspective analysis to assist teaching firstly, while observing the class as a student, to clarify the teaching aspects that can be adjusted and improved, forming a "two-way perception" between teachers and students. Secondly, the teacher further promotes the docking of classroom information and the flow of music emotions with students to establish the "same frequency" between teachers and students. Again, the integration of context, sound, graphics, and teaching aids can help stimulate the emotions of the music and guide students to perceive, experience, and try to express the feelings and changes contained in the music.

Further, evaluation feedback is essential to promote deep learning throughout the blended learning process. Instead of presenting teachers' subjective judgments through scores, evaluation requires recording and analyzing teaching and learning behavior data. It is necessary to change from an empirical assessment focusing only on results and objectives for a developmental evaluation focusing on stages and reflections so that it can not only evaluate students' learning and teaching effectiveness in an objective and evidence-based manner but also serve as a basis for improving teaching programs, updating teaching modes, and enhancing learning effectiveness.

Based on the teaching concept and management system of blended music teaching, we have established an effective formative assessment system by combining structured and indexed evaluation rules and integrating multiple settings and participation of teachers and students, human and machine, and internal and external participants. The total grade is divided into two major parts: online + before and after class and offline + during and after class, including regular and final grades, four assessment modules, eight types of evaluation methods, and a total of 22 evaluation indicators.

The information technology in the classroom is used to manage and retrace the process in batches and to evaluate the student's ability to "internalize and absorb" new knowledge to achieve a harmonious integration of scale and individuality. The mastery of professional basic knowledge and skills in this course depends to a large extent on the gradual accumulation of regular assignments, design research, and project practice. Therefore, the system aims to guide students to enter the course with a low threshold at the beginning, gradually adapt to the characteristics of the course, build up learning confidence, obtain positive feedback, change from "solo" to "group" learning, promote the learning culture of autonomy, cooperation and inquiry as the theme. In addition, students are trained to think differently, cooperate and compete, and are deeply involved in every aspect of teaching and learning, and their progress in each competency is tested for final evaluation. Nearly 72% of the students believe that the multiple and specific assessment methods effectively guide learners to focus on the articulation of each learning stage and content and to objectively and comprehensively recognize the strengths and weaknesses of their learning. At the same time, it does not cause students to lose their motivation to continue and advance in their learning because of the frustration of not performing as well as they would like at a particular stage [14].

In this process, students gain explicit benefits, including course credits, research reports, program works, and dynamic growth analysis of their ability. At the same time, students also have implicit benefits, i.e., in-depth mastery of the course knowledge system, a sense of accomplishment when the results are communicated and presented, etc. In addition, the study also helps teachers improve their ability to apply information technology, better control the teaching process, pay attention to students' learning status, analyze their cognitive patterns and learning characteristics to continuously optimize teaching contents, innovate teaching methods, improve teaching

experience, enhance teaching efficiency, and reasonably "transform" professional knowledge into students' The teaching process will be continuously optimized, the teaching methods will be innovated, the teaching experience will be improved, the teaching efficiency will be enhanced, and the professional knowledge will be "transformed" into professional skills.

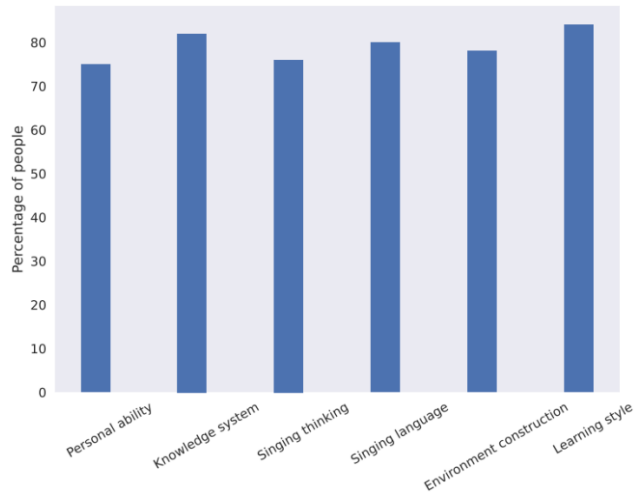


Figure 7: The statistical diagram of the improvement of the profound learning ability of the course.

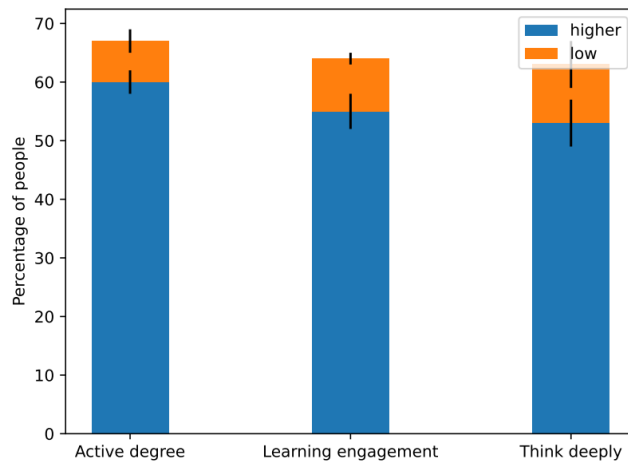


Figure 8: Schematic diagram of deep learning state statistics.



Figure 9: Schematic diagram of the association of blended music learning time spent with regular and final grades.

5 CONCLUSION

The music curriculum must be combined with national music textbooks to develop teaching activities. Because of the small amount of class time and the large number of pieces to be studied each semester, many schools have the problem of studying one new piece per music section. This is not conducive to deep learning because students tend to lose interest in music through monotonous music learning. In conclusion, the connection between deep learning and core literacy in music teaching is exceptionally close, and the quality of music teaching can be significantly improved by reforming traditional teaching methods and using deep learning to enhance students' core literacy. As more people understand the importance of deep learning, music teaching will improve. With interactive e-learning modules and AI-driven personalized learning environments, students engage with music in multifaceted ways, leveraging diverse learning styles. This integration encourages cross-disciplinary collaboration, fostering innovative approaches to education.

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