EXPLORATION OF THE MULTIPLE INTEGRATION MODE OF MODERN INTELLECTUALISED MUSIC TEACHING AND TRADITIONAL MUSIC CULTURE

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ABSTRACT

In this paper, the elite TLBO algorithm is utilized to integrate modern vocal music teaching with traditional music culture, and a feedback phase is introduced to improve the algorithm's optimization accuracy and stability. An intelligent teaching framework is constructed to integrate the integration of different forms and repertoire of traditional music, as well as the integration of phonetics and phonological systems. Artificial intelligence is integrated with modern sound teaching through traditional music culture, and an experimental test and satisfaction survey is conducted in a university as an example. The results show that the percentage of students' time spent on independent learning outside the classroom rises rapidly from 51% to 77%, while on the contrary the percentage of time invested in entertainment decreases from 26.6% to 11.5%. Satisfaction surveys of teachers using the application as well as students were conducted, with all six evaluation components scoring above 9.0. The study shows that the teaching mode of integrating traditional music culture in modern intelligent teaching can enhance the students' vocal skill ability, which in turn improves the students' vocal art quality and improves the overall level of vocal music teaching.

KEYWORDS

Elite TLBO algorithm; feedback stage; phonological system; artificial intelligence; intelligentized teaching

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1. INTRODUCTION

At this stage, has fully entered the information society, education and teaching, should also be fully integrated with intelligent related technology to improve the quality of music classroom teaching [1]. Therefore, music teachers should be aimed at the characteristics of students who are full of curiosity about new things, actively develop and utilize information technology, explore the integration strategy of music teaching and intelligent technology, and then help students fall in love with music and develop good learning habits [2]. Creating an intelligent teaching environment on the one hand changes the teaching method of the teacher-led classroom and provides students with rich database resources [3]. Students use network resources to understand the major teaching platforms and learn the relevant knowledge of the music curriculum, and at the same time, they can make personalized choices according to their own learning characteristics in terms of teaching materials, content, exams, forms of expression, etc., to achieve personalized learning [4-5]. On the other hand, to improve students' learning conditions, students, with the support of diversified and modernized technologies, can quickly stimulate learning motivation, enter the world of music, experience the creator's emotions, and form music literacy in an image and vivid environment [6-7].

In this paper, artificial intelligence is firstly used to enhance learning efficiency by personalized learning experience and intelligent content recommendation. Secondly, elite algorithms are used to optimize teaching plans and content to ensure more efficient and goal-oriented teaching activities. In the teacher phase, it helps teachers to adjust teaching methods and materials based on students' progress and feedback. In addition, an intelligent teaching framework was established to combine traditional music and cultural elements with modern teaching techniques. Integration of different forms and repertoire of traditional music, as well as the integration of tonal and phonetic systems, thus utilizing the advantages of modern teaching methods while maintaining the authenticity and depth of traditional music education. Through these methods, not only can traditional music be taught and passed on more effectively, but intelligent technology can also be utilized to improve the teaching effect and create a modern music teaching environment that is multifaceted and integrated.

2. LITERATURE REVIEW

Jiandong Cai used neural networks for audio time domain and frequency domain feature extraction to construct a music pattern library, a synthesis algorithm to generate a music training model, and a GRU model for music training and model prediction. The experimental results show the conclusion that adopting the teaching mode of traditional music and culture integration can improve students' music skills and artistic literacy, which in turn improves the accomplishment of students' learning objectives and improves the level of music teaching [8]. Yan Bai constructed a variety of music integration teaching methods by analyzing the development characteristics of music teaching, and used adaptive sampling and BP network-based Markov chain

Monte Carlo methods to conduct teaching evaluation. The prediction accuracy of the model constructed in this thesis reaches more than 94%, and the relative error is controlled within 1.5%. It shows the feasibility of teaching the integration of modern popular music and traditional music culture through the BP neural network model and provides a meaningful teaching quality evaluation system [9]. Gegen bilige used the association rule algorithm to establish a computational model for the integration of university music teaching and traditional music culture, and used the indexes of the integration degree, the value, and the acceptance degree to the degree of integration and the effect of integration are analyzed. The results of the study show that the combination of college music teaching and traditional music culture is a feasible and effective teaching strategy with popularization value [10]. Yingxue Zhang et al. develop a recursive neural network music-based automatic synthesis technology for melody teaching. First, a strategy for extracting acoustic features from musical melodies was proposed. Secondly, a sequence model was used to synthesize general music melodies. After that, a synthesized musical RNN melody is set up to combine with a singing melody, e.g., to find a suitable singing clip for a musical melody in a teaching scenario. The RNN can synthesize a musical melody with a short delay based on static acoustic features only, thus eliminating the need for dynamic features. Experiments have proved the effectiveness of the model [11]. Jun Hao analyzed the degree of information diffusion of traditional music culture in music teaching in colleges and universities by combining the information diffusion model, and the results show that the integration of different types of traditional music cultures has different impacts on music teaching; traditional music is mainly integrated into music teaching through musical emotions and tunes. Therefore, integrating the emotion of traditional music culture into music teaching can enhance students' understanding of music and improve their perception of music emotion to a certain extent [12]. Jun Hao believes that the co-development of music teaching in colleges and universities and the inheritance of national music culture is an important topic. In music teaching in colleges and universities, it is necessary to strengthen the attention to and inheritance of national music culture, so that students can understand and experience the essence of national music culture while learning music [13]. Li Sun puts forward positive and effective specific paths for the integration of traditional music culture into the teaching of vocal music in universities to strengthen the traditional music culture literacy of vocal music teachers, further innovate the teaching methods of vocal music, utilize the advanced teaching technology for teaching, enriching students' emotional experience in the teaching process, as well as choosing suitable music works to cultivate students' perceptual ability [14]. Yuan,Y. proposed that multimedia can improve students' thinking ability and cultivate students' thinking quality, which, combined with the vivid function of Cal courses, greatly stimulates students' interest in learning, and put forward that computer-assisted teaching will be the direction of the future reform of education [15]. He,J. used multimedia digital technology to build a rich and independent online learning learning environment. Teachers can present music teaching content through Internet teaching resources, and students learn music through online platforms to realize interactive learning [16].

3. APPLICATION OF INTELLECTUALIZATION TECHNOLOGY IN MUSIC TEACHING

3.1. ARTIFICIAL INTELLIGENCE EMPOWERS MUSIC TEACHING

The value of technology in education is not determined by technology, but by people. Therefore, AI-enabled teacher education should first follow the law of human understanding of things [17]. At the same time, it should also make scientific decisions about the main contradiction and the main contradictory aspects of AI-enabled teaching and teaching research, that is, how to accurately empower for different contents and different periods of time, so as to construct an intelligent and precise boosting matrix [18]. Based on the above ideas, the realization path of AI-enabled teacher education is constructed as shown in Figure 1. First, it should follow the law of scientific understanding, and the law of teachers' and students' understanding of things is the foundation and premise of AI-enabled teacher education. For example, in the case of practical training on music lesson preparation ability, teachers or teacher trainees should first have practical experience through studying excellent teaching design, trying to prepare lessons for a specific music course, etc., to form a perceptual understanding of lesson preparation. Secondly, it should be facilitated based on the precision matrix, and the use of the precision teaching matrix can make teaching more precise, and promote students' efficient learning by constructing precise teaching strategies that match the music teaching stage and different lesson types [19].

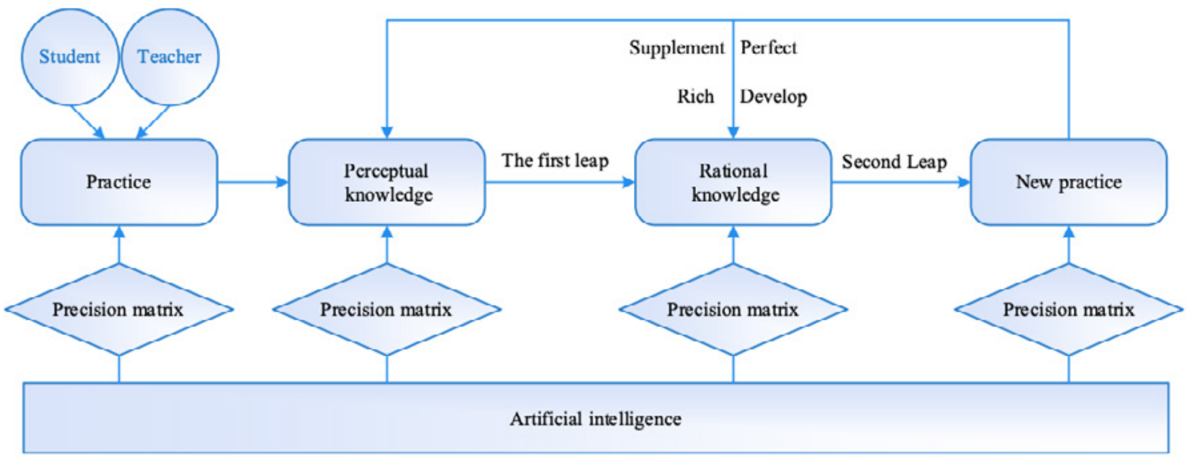

Figure 1. Ai-enabled teacher education path

3.2. INSTRUCTIONAL OPTIMIZATION ALGORITHM

3.2.1. ELITE ALGORITHM

Suppose there are two different teachers T_1 and T_2, teaching the same music subject in different classes, and the students in both classes have the same initial

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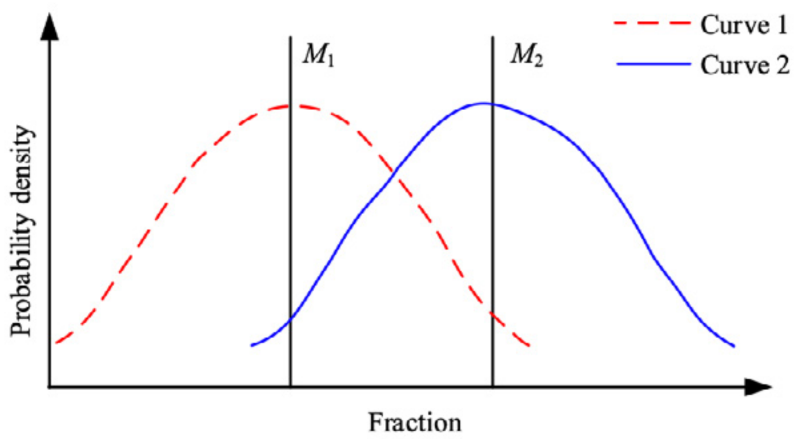
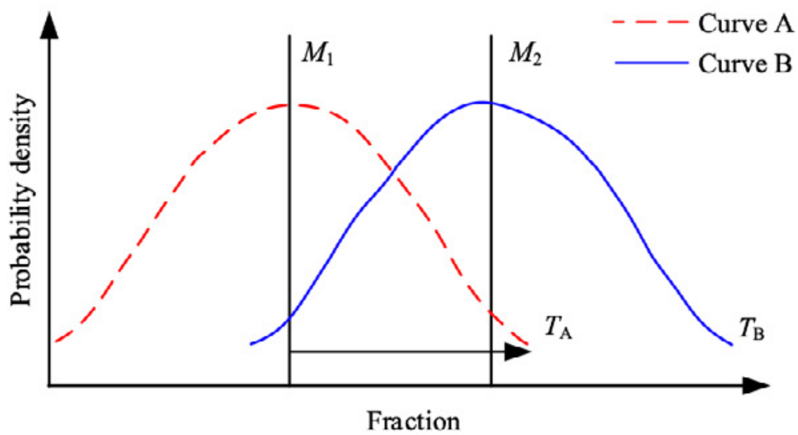
level [20]. Figure 2 shows the teacher and student distribution curves, Figure 2(a) shows the distribution of student scores in the two classes under the teaching of the teachers, Curve 1 and Curve 2 are the distributions of scores under the teaching of Teachers T_1 and T_2, respectively, and M_1 and M_2 are the mean values of Curve 1 and Curve 2, respectively. Assuming that the scores follow a normal distribution, curve 2 has a higher mean than curve 1, and it can be said that teacher T_2 is better in teaching than T_1. Besides the help of the teacher, the students improve their scores by communicating with each other. Figure 2(b) shows the curve of students' obtained scores and curve A represents the model of distribution of scores obtained by students in a class. Teachers are the most knowledgeable people in the society, so the students who get the highest scores act as teachers, and teachers T_A impart knowledge to the students, which increases the average score of the whole class. Teacher T_A endeavors to bring the class mean score from M_A closer to the new mean score M_B by teaching the students knowledge, so that the students in turn need new teachers with more knowledge than the students, i.e., new teachers T_B on the new curve B.



(a) The distribution of students' scores under different teachers' instruction



(b) Students get a grade curve

Figure 2. Distribution curve of teachers and students

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$$f(x)=\frac{1}{\sqrt{2\pi\sigma}}\exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right) \tag{1}$$

where σ^2 is the variance, μ is the mean, and x is a normally distributed random variable. Like other algorithms inspired by natural phenomena, the TLBO algorithm is a population-based algorithm. In TLBO algorithm, the number of students is the population number of the algorithm, the music learned by the students is the independent variable, the result of the students' learning is the fitness value, and the teacher is the current best solution. The TLBO algorithm is divided into a teacher phase and a student phase, the teacher phase is for the students to learn the knowledge from the teacher, the student phase is for the students to learn the knowledge by communicating with each other, and the outputs of the teacher phase are used as inputs for the student phase.

3.2.2. TEACHER PHASE

At any number of iterations i, M_i is the mean, T_i is the teacher, and the teacher T_i tries his best to keep the mean T_i close to his level so that the new mean M_{new} is close to T_i. The difference between the current mean and the new mean is given by equation (2):

$$\text{DifferenceMean}_i = r_i\left(M_{\text{new}} - T_F M_i\right) \tag{2}$$

where r_i is a random number from 0 to 1, T_F is the teaching factor, which determines the extent to which the mean value is changed, and T_F is randomly determined to be 1 or 2 by equation (3), i.e:

$$T_F = \text{round}[1+\text{rand}(0,1)] \tag{3}$$

The teacher phase updates the current solution according to equation (4):

$$x_{\text{new},i} = x_{\text{old},i} + \text{Difference Mean}_i \tag{4}$$

Accept x_{new} if x_{new} is better than x_{old}.

Determine the average level of the student population for any number of iterations. The goal of the teacher, as an expert or best practitioner in the field, is to bring the average level of the student population as close as possible to his or her own level. This approach is similar to mentorship in modern teaching, in which the teacher helps students progressively reach higher skill levels by providing expert guidance and feedback. This is achieved through a specific mathematical formula. Here, a decisive role is played by the teaching factor, which controls the extent to which the mean value changes, and this factor itself is determined by the rule of randomly determining it as 1 or 2. This element of randomization increases the flexibility and adaptability of the teaching process, allowing the teaching method to be adjusted to different

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situations and student needs. Further, another task of the teacher phase is to update the current pedagogical solution according to a specific update formula. This updating is based on comparing the effects of the current solution with the new one, thus ensuring that the teaching process is always moving towards the optimal outcome. If the new solution is superior to the current one, then it will be accepted and applied in the teaching practice.

3.2.3. STUDENT PHASE

The student phase is for students to randomly interact with each other, where students are able to acquire new knowledge from students who have more knowledge than they do. Is the independent variable of the optimization problem and $f(x)$ is the objective function of the optimization problem. After the teacher phase, two students x_i and x_h are randomly selected, where $i \neq h$. Firstly, the values of the objective function corresponding to the two students are compared, and if $f(x_i) < f(x_h)$, it means that student x_i is better than student x_h, then x_{new} is closer to x_i, as shown in equation (5):

$$x_{\text{new},i} = x_{\text{old},i} + \text{rand}_i(x_i - x_h), \quad f(x_i) < f(x_h) \tag{5}$$

Conversely, student x_h is superior to student x_i, then x_{new} moves closer to x_h as shown in equation (6):

$$x_{\text{new},i} = x_{\text{old},i} + \text{rand}_i(x_h - x_i), \quad f(x_h) < f(x_i) \tag{6}$$

After the student stage process, compare new solution x_{new} with current solution x_{old} and accept x_{new} if x_{new} is better than x_{old}.

3.2.4. ALGORITHM FLOW

In the elite TLBO algorithm, students improve their scores only through teachers' teaching or communication with students, which is a single learning method [21-22]. However, in the actual student learning process, students often also with the teacher active and purposeful feedback exchanges, through the feedback for their own learning knowledge to check the gaps and fill in the gaps can get more knowledge, which can further improve the students' scores. Therefore, this paper introduces a feedback phase based on the elite TLBO algorithm to improve the algorithm's optimization accuracy and stability.

The feedback phase is added after the student phase so that students improve their scores not only through the teacher's teaching and students' communication with each other, but also through students' direct feedback communication with the teacher. After the student stage, two students x_i and x_d are randomly selected, where $i \neq d$. Compares the corresponding objective function values of the two students, and

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if $f(x_i) < f(x_d)$, it means that student x_i is better than x_d, then student x_d is selected to have a feedback exchange with the teacher, as shown in equation (7):

$$x_{\text{new},i} = x_{\text{old},i} + \text{rand}_i(M_{\text{new}} - x_d), f(x_i) < f(x_d) \quad (7)$$

Instead, students were selected for a feedback exchange with the teacher, as shown in equation (8):

$$x_{\text{new},i} = x_{\text{old},i} + \text{rand}_i(M_{\text{new}} - x_i), f(x_d) < f(x_i) \quad (8)$$

After the feedback stage process, compare the new solution x_{new} with the current solution x_{old} and accept x_{new} if x_{new} is better than Student satisfaction.

The addition of the above feedback process increases the learning mode of students, ensures the diversity of students and improves the global search performance of the algorithm. At the same time, the feedback stage enables poorer students to quickly approach the current optimal individual teacher, and the search range is quickly converged to the vicinity of the optimal solution, and in the algorithm's termination conditions iterative number of generations must be certain, the algorithm carries out the local fine search in the later stage of the number of generations of the relative increase, so that the algorithm's optimization search accuracy and stability will be improved.

Feedback elite teaching algorithm for optimization problems, the algorithm flow is shown in Figure 3, the steps are as follows:

1. Define the optimization problem and initialize the parameters of the optimization problem, initialize the number of group members, the number of iteration generations, the number of independent variables and the constraints of the optimization problem.

2. According to the number of group members and the number of independent variables, randomly generate the initial population.

3. Evaluate the population and retain the elite solution.

4. Teacher stage, teaching process in teacher stage according to equation (4).

5. Student phase, according to Eqs. (5) and (6) students are randomized to communicate with each other to improve their performance.

6. Feedback phase, according to Eqs. (7) and (8) students engage in feedback exchanges with the teacher to improve student performance.

7. Elite solutions replace poorer solutions.

8. Randomize the variation operation on the elite solution.

9. Repeat steps 3 to 8 until the end condition is satisfied.

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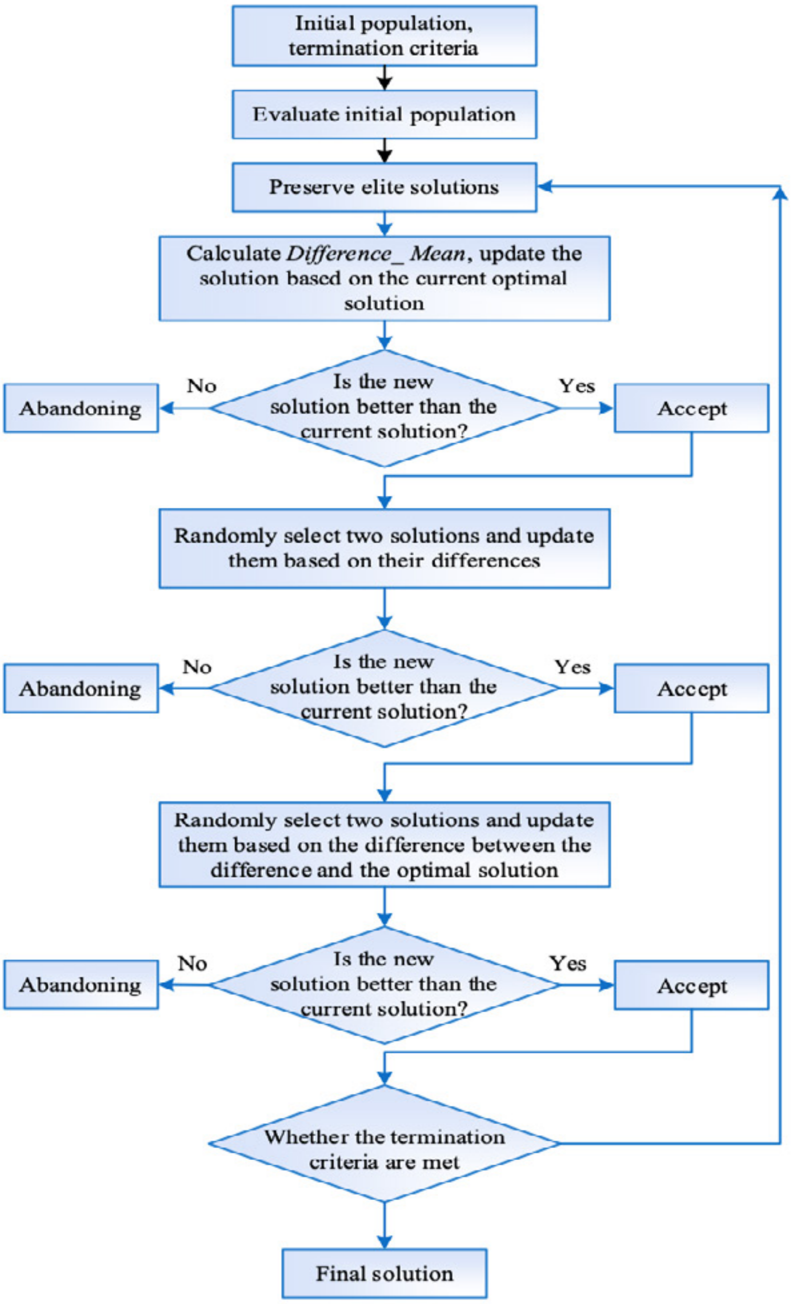

Figure 3. Algorithm flow

4. CONSTRUCTION OF A MODERN INTELLIGENTIZED MULTI-INTEGRATION MODEL

4.1. INTELLIGENT TEACHING AND LEARNING FRAMEWORK

Intelligent teaching is therefore intelligent because the agent has a thinking state, which is generally categorized into three parts: belief-knowledge, desire and intention for education, which in turn can be integrated with the Agent's perception and reasoning as well as planning and action [23]. The intelligent teaching conceptual

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model is shown in Figure 4, where the agent's belief-awareness state is used to portray the user's learning needs and cognitive abilities in the teaching conceptual model. The agent's information is stored in the knowledge base, the learning module accepts the user's feedback and the KQML messages transmitted by other teaching agents, and then converts these feedbacks and messages into the agent's information about the user's learning needs and cognitive abilities according to certain inference rules, and then utilizes this information to update the agent's information stored in the knowledge base. Based on the agent's information, the matching module filters out the learning resources from the resource base that are suitable for the user's needs and abilities.

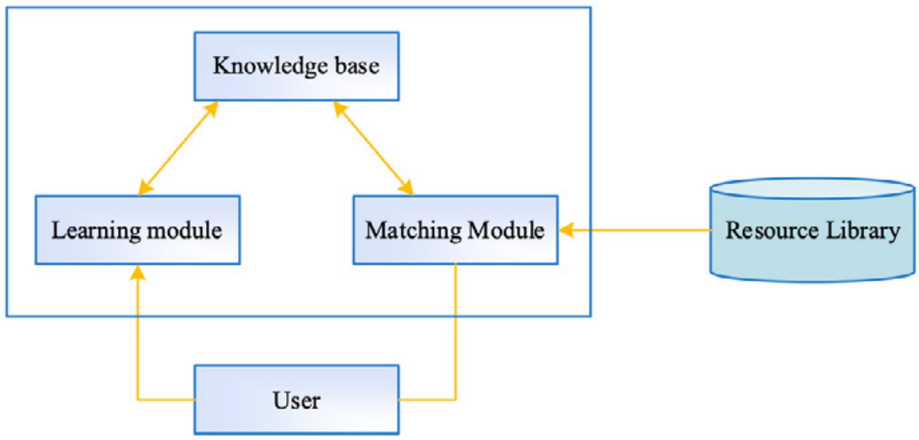

Figure 4. Intelligent teaching model

Suppose that in the teaching activity, the agent adopts a certain behavior a, and the representation of the credence on which behavior a is based is $S(a)$. The agent updates the credence based on the following formula:

$$S(a) \leftarrow S(a) + \lambda(r - S(a)) \quad (9)$$

where r is the feedback signal resulting from the agent's behavior a, and $\lambda(0 < \lambda < 1)$ denotes the learning efficiency, i.e., the extent to which the new credence replaces the current credence.

4.2. INTEGRATION OF TRADITIONAL MUSIC AND CULTURAL ELEMENTS

4.2.1. TRADITIONAL MUSIC FORMS AND REPERTOIRE

In modern intelligentized music teaching, the integration of traditional music forms and repertoire is a key part of realizing multicultural inheritance. First of all, it is necessary to clarify the traditional music forms to be fused, which include, but are not limited to, classical music, ethnic music and so on [24]. These forms represent the music culture of different historical periods and regions, and are the vivid expression of traditional music. When choosing traditional repertoire, emphasis should be placed

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on representativeness to cover different styles and regions. This not only helps students to fully understand the diversity of traditional music, but also provides them with a broader learning horizon. By selecting representative repertoire, students can deeply feel the essence of traditional music, experience the musical language of different cultures, and promote their understanding and love of traditional music.

4.2.2. METRICAL AND PHONETIC SYSTEMS

Traditional rhythms often carry unique cultural connotations and have certain differences from modern rhythms. In the process of integration, these differences need to be studied in depth and a suitable way of integration determined. Adjustments involving tonality, scales, intervals, etc., are involved to ensure that the integrated music can inherit the traditional tonal characteristics while conforming to the context of modern music. Focusing on the preservation of the unique tonal system of traditional music is an important means of maintaining cultural heritage, including the protection and inheritance of traditional timbres, performance techniques, and sonorities [25]. In the integration mode, the traditional phonological system is integrated into modern music teaching through the use of traditional instruments and the preservation of traditional performance methods. Such integration not only allows students to feel the uniqueness of traditional music, but also provides them with a more comprehensive musical experience.

5. ANALYSIS OF THE EFFECTIVENESS OF THE INTEGRATION OF MODERN INTELLECTUALIZATION AND TRADITIONAL MUSIC CULTURE

5.1. COMPARISON OF LEARNING OUTCOMES

For the structural change of students' music assignment participation in the two teaching contexts before and after the smart application, students' time investment indicators are usually used to carry out observational analyses, and the difference in students' time investment in learning leads to significant differences in their perceptions of the effectiveness of teaching and learning before and after the smart application. For this reason, this paper first utilizes the time investment of students' participation and their time allocation structure to explore the changes in students' academic participation paradigms in different teaching contexts.

Table 1 shows the study and recreation time before and after the smart application, and the study shows that the total total time investment in students' weekly activities increased during the online learning period, and that there was a slight increase in the time spent on independent learning outside the classroom. However, it is of great concern that the total weekly time investment of students' recreational time during post-application teaching amounted to 23 hours, which is 1.8 times of the time investment in recreational time in traditional offline teaching contexts. Meanwhile, this paper's investigation also found that students in online teaching situations spent an average of 11 hours per week utilizing online social networking platforms such as WeChat, QQ, and Weibo. When the students' learning field is changed from traditional offline classroom to intelligent multiple integration mode, the proportion of independent learning time outside the classroom rises rapidly from 51% to 77%, while the proportion of entertainment investment time decreases from 26.6% to 11.5%.

Table 1. Study and recreation time before and after intelligent application

	Before intelligent application	After intelligent application
After-school study time	11.3	10.5
Fun time	23.0	12.2
Class time	18.6	23.9
Proportion of study time	51	77
Percentage of recreation time	26.6	11.5

5.2. ANALYSIS OF LEARNING INTERESTS

The data obtained from the overall sample of subjects in the pre-test and post-test were applied to the t-test to see the differences in the interest in music learning before and after the integration of the multiple modes and their significance, Table 2 shows the analysis of the results of the t-test of the samples, which shows a significance at the 0.01 level of significance between the pre-music affective experience and the post-music affective experience with t=-6.7 and p=0.000, and comparing the differences it can be concluded that the pre-music affective experience mean of 2.6 would be significantly lower than the mean of 3.1 for the post-Musical Emotional Experience. pre-Musical Perceived Focusing Ability and post-Musical Perceived Focusing Ability showed a significance at the 0.01 level of t=-8.1, p=0.000, and a comparative difference can be made to conclude that the mean of 2.7 for the pre-Musical Perceived Focusing Ability would be significantly lower than the mean of 3.1 for the post-Musical Perceived Focusing Ability. music Novelty Associations pre and Music Novelty Associations post show a significance at the 0.01 level t=-3.9, p=0.000, and a comparative difference can be made to conclude that the mean of Music Novelty Associations pre, 2.9, would be significantly lower than the mean of Music Novelty Associations post, 3.1. Music Cognitive Explorations pre and Music Cognitive Explorations post show a significance at the 0.01 level t=-9.6, p=0.000, and a comparative difference can be made to conclude that Music Perceived Concentration ability pre mean 2.7, would be significantly lower than the mean of Music Perceived Concentration ability post, 3.1. 0.000, and a comparative difference can be made to conclude that a mean of 2.8 for the pre-musical cognitive inquiry would be significantly lower than a mean of 3.44 for the post-musical cognitive inquiry. The pre-musical

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creativity challenge level and the post-musical creativity challenge level show a significance at the 0.01 level, t=-9.2, p=0.000, and a comparative difference can be made to conclude that a mean of 2.89, which is significantly lower than the mean value of 3.3 after the music creation challenge level. 0.01 level of significance was found between the pre-feeling of the music classroom as a whole and the post-feeling of the music classroom as a whole, t=-10.1, p=0.000, and the difference in comparison can be concluded that the mean value of 2.75 for the pre-feeling of the music classroom as a whole is significantly lower than the mean value of 3.3 for the post-feeling of the music classroom as a whole. Reflecting the modern wisdom of music teaching and traditional music culture fusion, music teaching enhances the students' learning interest.

Table 2. Analysis of sample T-test results

Pair number	item	Mean value	Standard deviation	Mean difference	t	p
1	Music before emotional experience	2.6	0.6	-0.3	-6.7	0.000**
	Music after emotional experience	3.1	0.7			
2	Music perception before focus	2.7	0.6	-0.3	-8.1	0.000**
	Music perception after focus	3.1	0.6			
3	Music before new associations	2.9	0.5	-0.2	-3.9	0.000**
	Music after new associations	3.1	0.7			
4	Before music cognitive inquiry	2.8	0.6	-0.5	-9.6	0.000**
	After music cognitive inquiry	3.44	0.5			
5	Before the music creation challenge	2.89	0.6	-0.4	-9.2	0.000**
	After the music creation challenge	3.3	0.5			
6	Music class before the overall feeling	2.7	0.5	-0.6	-10.1	0.000**
	Music class after the overall feeling	3.3	0.6			

5.3. TEACHER AND STUDENT EXPERIENCE OF USE

To further validate the effectiveness of the Modern Intelligent Multi-Music Integration Model, a scale of 1-10 was used to indicate the satisfaction of teachers and students, with higher scores indicating higher levels of satisfaction. The results of the teachers' and students' experience of using the program are shown in Table 3, with all six evaluation components scoring above 9.0. Among them, the integrated traditional music form was highly recognized by teachers and students, with a teacher satisfaction score of 9.1 and a student satisfaction score of 9, providing strong support

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for teaching. For the question of whether the integrated music retained the characteristics of traditional meters, the teacher satisfaction was 9.2 and the student satisfaction was 9.5, indicating that the integrated music performed well in retaining the characteristics of traditional meters, and successfully inherited the unique charm of traditional music.

Table 3. Results of teachers' and students' experience

Evaluation item	Teacher satisfaction	Student satisfaction
Whether the integrated traditional music forms meet the teaching needs	9.1	9.2
Representativeness and coverage of traditional repertoire	9.2	9.4
The rationality of integrating traditional music elements into teaching content	9.0	9.0
Whether the integrated model can stimulate students' interest in traditional music	9.5	9.4
Whether the integrated music retains the characteristics of the traditional rhythm	9.2	9.5
Ease of use of the teaching platform using intelligent technology	9.4	9.6

6. CONCLUSION

For the long-term development of music teaching in colleges and universities, it is necessary to integrate traditional music culture into music teaching. This study utilizes the elite TLBO algorithm to integrate traditional music culture with modern music, introduces a feedback phase to improve the algorithm's optimization accuracy and stability, and gives a strategy for the integration of modern music teaching and traditional music culture information. The classroom application is analyzed with the students and teachers of a university as the research object. In terms of study and entertainment time before and after the intelligent application, after the students' learning field was changed from the traditional offline classroom to the intelligent multivariate fusion mode, the percentage of independent study time outside the classroom increased rapidly from 51% to 77%, and on the contrary, the percentage of time invested in entertainment decreased from 26.6% to 11.5%. T-algorithm was used to test the data to see the difference in music learning interest and its significance before and after the fusion of multiple modes, and the results showed that music teaching enhanced students' learning interest after the fusion of modern intelligentized music teaching and traditional music culture. To further validate the effectiveness of the modern intelligentized multivariate music integration model, a satisfaction survey was conducted on the teachers who used the application as well as the students, and the six evaluation components were all above 9.0 points. This indicates that the integrated music performed well in retaining the characteristics of traditional sound and successfully inherited the unique charm of traditional music. The above data indicate that students recognized the strategy of informational integration of music teaching and traditional music culture proposed in this study, and believed that the integration of traditional music culture into the modern music teaching mode could create a good learning atmosphere and improve learning efficiency. It can develop students' musical skill ability and increase their interest in traditional music culture.

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