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The Construction and Use of a Higher Education Singing Art Teaching System Combining Digital Multimedia Art and Information Processing Technology

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Abstract. In higher education singing instruction, it is difficult to achieve the desired effect and quality of teaching simply by relying on classroom teaching. The development of digital media skills andmessage disposal tech has brought new ways to singing instruction. The integration of the two technologies in singing instruction is an innovation of singing instruction mode, which can present the teaching content in a more visual, intuitive and convenient way to achieve the teaching purpose. Therefore, changing the traditional singing instruction mode and promoting the use mode of the integration of digital media skills andmessage disposal tech has become an important direction of singing instruction. This paper puts forward the construction and use optimization of higher education singing instruction system integrating multimedia andmessage disposal tech, carries out the double test of media skills andmessage disposal tech, realizes the construction and use of higher education singing instruction system, and finally carries out simulation test and analysis. Simulation results show that the proposed algorithm has a certain accuracy, which is 10.34% higher than the traditional algorithm. The gradual popularization and use of multimedia andmessage disposal tech in singing instruction in higher educations and universities in China will make our singing instruction more systematic, professional and modern. Its unique intuition and use interaction show a very broad use prospect in singing instruction in higher educations and universities, and will bring a new situation to singing instruction.

Keywords:media skills;message disposal tech; vocal teaching; Digital Multimedia Art
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1 INTRODUCTION

The pace of the times is constantly moving forward, and people have a deeper pursuit of their understanding and desire for art [21]. singing instruction is the focus of music teaching in higher educations and universities. Its important purpose is to enhance students' vocal singing skills, cultivate students' music feeling ability, and develop students' performance and creative quality [9]. In order to fully reflect the function and value of singing instruction, it is very critical and necessary to choose appropriate teaching methods, mobilize students' interest in learning, and meet the needs of teaching reform and innovation [18]. The use of media skills in singing instruction in higher educations and universities can change the traditional education mode, use more vivid and intuitive methods to show the teaching content, bring students into excellent learning situations, bring students visual and spiritual impact, and arouse students' learning enthusiasm [12]. higher education vocal music teachers should grasp the use principles in the process of applying media skills, so that the advantages of media skills can be fully reflected in singing instruction [19]. At this stage, the specific use of media skills can change the current situation, bring more positive effects, promote the optimization of teaching quality and the improvement of educational effectiveness, and improve students' learning efficiency and quality. It is necessary to fully understand its role and characteristics, and then apply it in combination withmessage disposal tech. Digital multimedia art can also be used to create engaging and interactive learning environments that encourage collaboration and creativity. For example, students could work together to create their own music videos, using digital tools to edit and enhance their recordings.

Vocal music is a kind of singing form full of aesthetic feeling [17]. Vocal music is not simply made with sound. It has high requirements for the talent and diligence of singers. The history of vocal music and singing instruction is very long. Vocal music has different classifications in the form of performance, which is inseparable from its diversification and diversity [4]. The continuous improvement and development of modern educational concepts and models in the world make vocal music an art form of expression more popular and popular. Therefore, vocal music class has become a way for people to learn more about this art. We all know that in vocal music class, teachers usually teach [8]. Although the teaching mode of demonstration singing and accompaniment is fine, it has limitations, If such a situation is applied to the comprehensive teaching of large classes, it is flawed. Because the classroom time is limited and the teachers' energy is limited, this fine teaching mode is not the best choice when there are a large number of students. The use of media skills andmessage disposal tech in singing instruction in higher educations and universities can be adjusted to improve this problem. media skills and information processing, as a modern and novel high-tech technology, can be well used in many aspects, and it is no exception in vocal music classroom teaching in higher educations and universities. The use of both can bring great convenience to teachers and students from any angle. In this paper, the methods of media skills andmessage disposal tech are used to build and apply the singing instruction system in higher educations and universities, and make suggestions and Countermeasures for the pain points and itch points of singing instruction in higher educations and universities, in order to reduce the implementation cost of the method. Through practice, it is proved that this combination can not only reduce the universality of singing instruction, but also improve the quality and efficiency of singing instruction in higher educations and universities.

Singing instruction is different from the teaching of other music disciplines. It is a kind of abstract teaching [3]. It is an artistic form of expression that directly contacts and resonates with the performing objects. As a vocal music teacher in higher educations and universities, applying modern information technology to the teaching of traditional vocal music singing style is conducive to developing students' potential in learning, enabling them to master learning skills as soon as possible, improving learning efficiency, and providing a guarantee for traditional singing instruction. The use of media skills andmessage disposal tech provides great convenience for singing instruction. It has the advantages of visualization, concretization and informatization, and has become a hot

spot in singing instruction in modern higher educations and universities. It objectively evaluates the key points and difficulties in the traditional vocal music singing style in order to establish correct vocal music skills, enhance the intonation and rhythm, correctly determine the singing part and grasp the singing style of traditional vocal music, It is impossible to improve the performance ability of singing works in traditional singing instruction [5]. With the continuous development of digital media skills, digital media skills has realized the integration with medical treatment, education, traditional scientific research and other fields, and has become the general trend of future development. The use of digital media skills to reform vocal music performance teaching is an important means to innovate singing instruction, and it is also an inevitable choice to promote the development of singing instruction. Digital media skills will be one of the irreplaceable important carriers in vocal performance teaching. It can be said that digital media skills has effectively broken the limitations of traditional singing instruction and provided new possibilities for the informatization and modernization of vocal music performance teaching and learning. This paper combines multimedia andmessage disposal tech to build and apply the singing instruction system in higher educations and universities, so as to improve the teaching quality. Its innovation lies in:

- This paper uses media skills andmessage disposal tech to reform singing instruction mode and promote teaching innovation
- Set up a singing instruction system through data processing to provide a complete teaching system

This paper studies the construction and use of singing instruction system in higher educations and universities. The structure is as follows:

The first chapter is the introduction. This part mainly expounds the research background and significance of singing instruction optimization, and puts forward the research purpose, method and innovation of this paper. The second chapter mainly summarizes the relevant literature, summarizes its advantages and disadvantages, and puts forward the research ideas of this paper. The third chapter is the method part, focusing on the combination of multimedia andmessage disposal tech to quantify the data to build a singing instruction system. The fourth chapter is the experimental analysis. This part has carried on the experimental verification in the data set, and analyzed the performance of the model. Chapter five, conclusion and prospect. This part mainly reviews the main contents and results of this study, summarizes the research conclusions and points out the direction of further research.

2 RELATEDWORK

With the rapid development of economy and culture in China, music education, as one of the carriers of cultural heritage, needs to keep up with the pace of the times [1]. As an important part of social education, singing instruction highlights the new characteristics of the times, such as popularization, integration and development. Among them, singing instruction has developed rapidly in recent years. As a branch, singing instruction has also undergone profound changes in teaching mode and talent training mode. On the aspects of singing instruction: mainly discuss the conceptual problems of singing instruction. Ploetzner R et al. Discussed that singing instruction is a new educational method and an important part of music education in China. He elaborated on the relationship between piano playing and singing instruction and the two-way interaction in the new media era [13]. Lee HF et al. Combed, summarized and analyzed the research results on singing instruction according to the macro theoretical research on singing instruction, and put forward some of the author's own views [10]. Chopin K explained the basic concept and importance of singing instruction and made a detailed analysis on how to continue to improve singing instruction, and put forward some thoughts and suggestions [2]. Li s focuses on the research on the problems of teachers in singing instruction and the current situation of singing instruction [11]. Guo C explained that at

present, singing instruction has been highly concerned by people. However, there are various problems in the actual development of singing teaching, which is easy to promote the essential education of singing instruction to develop in an unhealthy direction [7]. Wagner l m and others believe that singing instruction, as an extension of school music education, has played a certain role in supplementing and perfecting students' music learning, and laid a solid foundation for training professional music talents. Social children's singing instruction as an important part of singing instruction, its development and practice have played a vital role in social singing instruction[20]. Boysen g a research specifically explains the phenomena and problems such as the wide range of singing instruction objects, the enrichment of teaching effects, the serious utilitarianism, and the uneven level of teachers [1]. Giannopoulou e et al. Summarized that the previous forms of singing instruction institutions were singing instruction institutions sponsored by the government, schools and social organizations. It plays a guiding role in the later research on singing instruction [6]. Saide s, Sheng ml elaborated that singing instruction has played a positive role in popularizing music education [16]. Rivero a s et al. Described the main forms of singing instruction in China, pointed out the problems in singing instruction in China, and analyzed the reasons. In view of the current singing instruction problems, the government, institutions, teachers, students and parents should work together to improve the comprehensive and sustainable development of singing instruction in essence [15].

3 METHODOLOGY

3.1 Using Media Skills To Reform Singing Instruction Mode and Promote Teaching Innovation

With the progress of society and the rapid development of network information technology, the society has higher and higher requirements for the comprehensive quality and ability of talents. They should not only have expertise, but also be broad and good at communication, but also have the ability to constantly adapt to the update of science and technology. The new talent competition is a comprehensive competition in knowledge, skills, quality and so on [14]. As far as the reality of our country is concerned, the training objectives of music education major in higher educations and universities will be more and more broad, Figure 1.

As can be seen from Figure 1, the nature of the jobs that graduates majoring in music education in normal universities are engaged in can be roughly divided into three categories: professional music teaching, professional skills education for professionals or professional music creation and performance. The general nature is to engage in general music teaching, carry out basic popularization education on music knowledge, music skills and music cultivation for non professionals or engage in similar work. It is engaged in music organization, counseling, music editing, etc. in a comprehensive way, showing the characteristics of combining teaching with creation, and combining specialty with common. From the flow of graduates and the nature of their work in the above figure, the flow of graduates majoring in music education in normal universities is far wider, wider and more complex than the "music teachers of middle and primary schools" whose training objectives are limited. Therefore, the vocal music students in normal higher educations must become the artistic generalists who "strive for perfection in a broad range of skills and one professional", so as to meet the requirements of the society for the comprehensive quality and ability of talents. Because the multimedia teaching system has the characteristics of large amount of information, fast transmission and high definition, using it to assist the singing instruction in normal universities can further improve the students' professional comprehensive quality, and make the students' singing skills, theoretical knowledge, program choreography and singing instruction develop together, so as to meet the social requirements for the diversity of music talents.

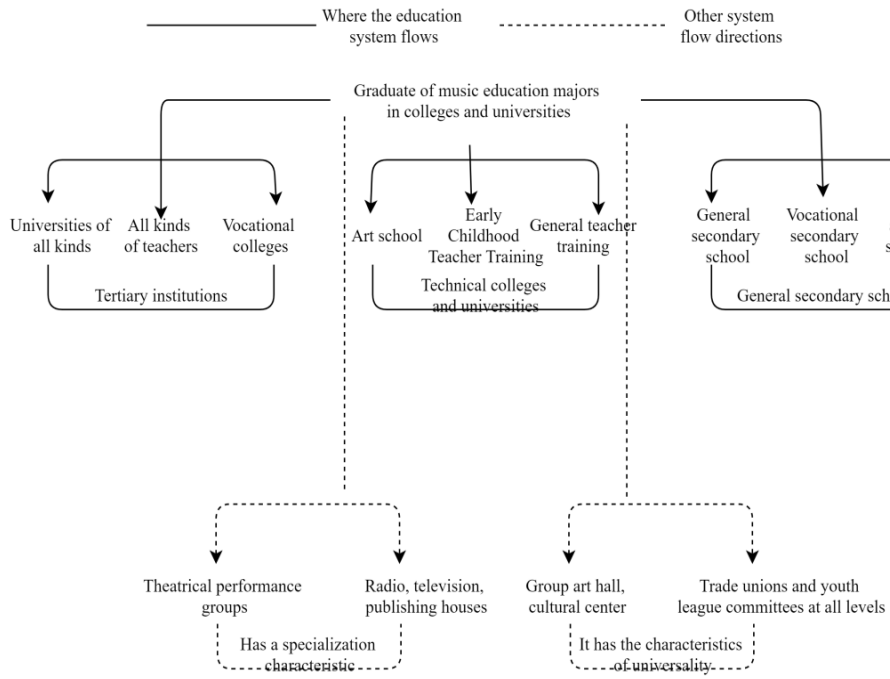

Figure 1: flow chart of music education and training.

The vocal music course in higher educations and universities mainly includes two parts: Theory and practice. The theory course accounts for a certain proportion, which is the basis and key for students to acquire basic music theory knowledge and improve the quality of vocal music [20]. However, for a long time, teachers have focused on guiding students to learn the singing of songs in singing instruction in higher educations and universities. They often ignore the theoretical teaching, or make a rough introduction in the theoretical teaching, or use the indoctrinated theoretical teaching method, which can not let students master the principles of vocal music, and also affect the singing effect of students. With the support of modernmessage disposal tech, singing instruction content in higher educations and universities is rich and diverse, which can effectively expand singing instruction content and bring new learning experience to students. Vocal music appreciation teaching is an important part of singing instruction in higher educations and universities. It is also an important part of improving students' music appreciation and perception, and developing students' aesthetic quality. In the past, the teaching of vocal music appreciation was rather boring and monotonous. It mainly played classical vocal music works to students, and then let students appreciate them and tell them the methods and skills to summarize them. This can not achieve the effect of vocal music appreciation teaching, but also affect the students' in-depth analysis of music works. In order to reduce the difficulty of teaching and ensure students' profound understanding in appreciation teaching, teachers can introduce modernmessage disposal tech and use technical means to show the singing audio and video of famous vocal artists at all times and in all countries in front of students, so as to achieve the coexistence of pictures and words and sound and color, and let students get good emotional and musical skills in their own experience. The end of classroom teaching does not mean the end of vocal music class, because after class is an important stage for students to consolidate the knowledge learned in class and realize the deep digestion and absorption of skills and skills.

Linear prediction inversion coefficients are developed on the basis of linear predictive analysis and the assumption that speech signals are autoregressive signals. Linear predictive analysis is a spectral estimation method that abstracts the channel model into a full-pole model starting from the sound mechanism, and its frequency response function $H\ (w)$ reflects the frequency response of the channel and the envelope information of the speech signal spectrum. Since the LPC reciprocal coefficient is obtained by taking the logarithm of $H\ (w)$ and then doing the inverse Fourier transform, this parameter can also describe the audio signal very well. The full-pole model obtained by linear predictive analysis has the following system functions:

$$H(z)=\frac{1}{1-\sum_{k=1}^{P}a_k z^{-1}} \tag{1}$$

where P is a linear predictor. If the impulse response is assumed to be $h(n)$, there are:

$$H(z)=\sum_{n=1}^{\infty}h(n)Z^{-n} \tag{2}$$

When solving the complex inverted spectrum $\hat{h}(n)$ of $h(n)$, according to the homomorphic treatment method, it can be seen that $\hat{H}(z)=\log H(z)$, since $H(z)$ has a solution within the unit circle, $\hat{H}(z)$ can be expressed in the form of a series, namely:

$$\hat{H}(z)=\sum_{n=1}^{\infty}h(n)Z^{-n} \tag{3}$$

Set $\hat{h}(0)=0$, the two sides of the equation to z^{-1} to find the derivative, to get:

$$\frac{\partial}{\partial z^{-1}}\log\left[\frac{1}{1-\sum_{i=1}^{P}a_i z^{-i}}\right]=\frac{\partial}{\partial z^{-1}}\sum_{n=1}^{\infty}\hat{h}(n)Z^{-n} \tag{4}$$

Get:

$$\sum_{n=1}^{\infty}n\hat{h}(n)z^{-n+1}=\frac{\sum_{i=1}^{P}ia_i z^{-i+1}}{1-\sum_{i=1}^{P}a_i z^{-i}} \tag{5}$$

Where: $\{a_i\}$ is the linear prediction coefficient. The LPC inversion coefficient effectively strips the excitation information from the speech signal and has stability higher than the LPC coefficient.

However, since the LPC reciprocal coefficient is only a predictive estimate based on a linear relationship, the robustness of the parameters is not very good, and the noise immunity is also low.

In some fields, it is not enough to use linear prediction, and the feature string extracted from the entity itself cannot be guaranteed to be completely accurate, such as teaching to guide students' cognition of musical melody, there must be many incorrect places, so the approximate match retrieval has its own unique importance.

Mode / *Method*	*Single mode*	*Multi-mode*
A method of searching based on prefixes	*1.KMP algorithm* *2.Shift-And/Shift-Or algorith* *3.BF algorithm*	*1.The Aho-Corasick algorithm is an extension of the KMP algorithm to multi-mode scenarios* *2.The Multiple Shift-And algorithm is an extension of the Shift-And algorithm to multi-mode scenarios*
Suffix-based search method - BM algorithm	*1.QS algorithm* *2.HORSPOOL* *3.TUNEDBM algorithm*	*1.Commentz-Walter is a direct extension of the BM algorithm* *2.Set Horspool algorithm, is the Horspool algorithm to multi-mode extension, can also be seen as a simplification of Commengtz-walter* *3.Wu and Manber's algorithms*
Methods based on substring searches	*1.BDM* *2.BNDM* *3.BOM*	*1.Multiple BNDM* *2.SBDM* *3.SBOM*

Table 1: List of string matching algorithms.

3.2 Building Singing Instruction Software Facilities Throughmessage Disposal Tech

System analysis and modeling is the key link to build the system. The first thing to do is to analyze the functional modules of the relevant modules in the web-based teaching evaluation and analysis system. The functional requirements analysis stage is a very critical part in the system construction. Therefore, the quality of completing the requirements analysis will have an important impact on the quality of subsequent system construction. The requirement analysis process of the system is quite long. It requires that the non functional requirements of the system should be considered from system business analysis to use case modeling, from use case modeling to the determination of system functions.

The process of data mining is the same as that of general engineering. First, it is necessary to raise questions and clarify the business objectives, that is, what kind of problems to be solved through data mining and what purpose to achieve. Only by specifying the objectives in advance can we ensure that the next work has evidence to rely on. The final result of mining is not transferred by people's will and has uncertainty, but the problems to be explored should be predictable, and data mining should not be carried out blindly. The first step of data mining is to process the data, including data cleaning, data filtering and data discretization. The next step is to establish a model

and analyze the model. If the modeling is unsuccessful, re model until a satisfactory model is established. Finally, the model is used for use. It can be seen that data mining is an iterative process, and its basic steps are shown in Figure 2.

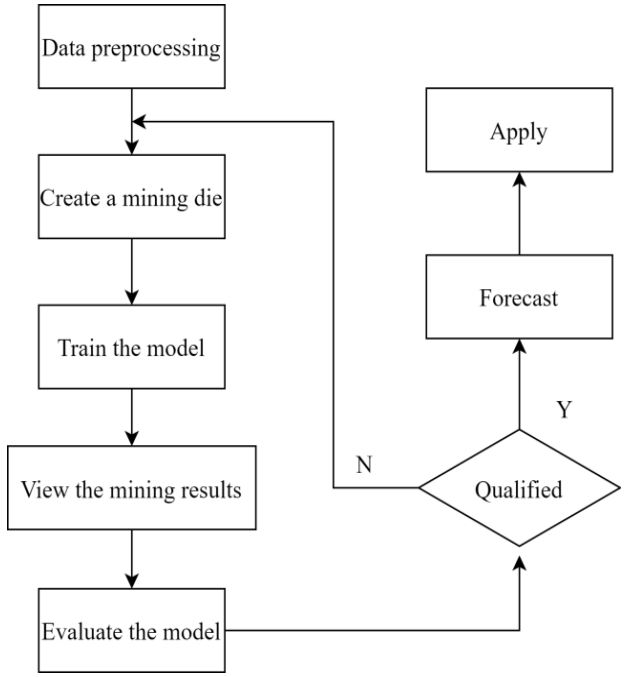

Figure 2: data mining flow chart.

Data processing in order to improve the efficiency and accuracy of mining, it is necessary to reasonably delete and improve the original data.

Deletion of attribute values. After the goal is clear, the next step is to analyze the data, keep the useful fields in the data table, such as the number field in this paper, and delete some irrelevant data fields, such as name and gender fields.

Deletion of records. There are often some illegal data records in the database. For example, if a student drops out of school, there is only the previous record of the student, but no later record. This will have a certain impact on the future implementation of mining, so illegal data deletion.

In the above two steps, one is to delete columns and the other is to delete rows, which reduces the original data, effectively saves the time of scanning the database, lays the foundation for the next mining work, and also makes the mining results more authentic.

Improve the data. Due to various reasons, some data may be missing, resulting in incomplete data. In order to ensure the accuracy of data mining, we must improve the data. If a student's absence from the exam results in incomplete data, you can ask for the opinions of relevant teachers and pre assign him a reasonable score.

Data conversion. If there is no data in the original data that the user is directly interested in, it is necessary to find a way to obtain the data that the user is interested in, and it is necessary to implement data conversion. For example, if the manager is not interested in the performance of a certain course of a certain student, and the total evaluation results of the students who need to

study, it is necessary to average the scores of each subject to obtain the total evaluation results of the student.

Data discretization. It can also be called segmentation or classification of data. In order to research, it is often necessary to discretize the continuous data, such as converting the percentage system into the hierarchical system.

Generally, to create a perfect mining model, the data set should be divided into three parts: training set, test set and verification set. Carry out data mining on the training set and the test set respectively, and compare the results of the two times. If the results are similar, it indicates that the model is successfully established. Otherwise, continue to create the data mining model until the model is created.

Prediction and use use the successful model to predict the data, convert the predicted results into knowledge and experience, and apply them to practice. In the process of practical use, it is necessary to constantly update the database, test its success probability with new data, and help enterprise managers make scientific decisions with models that are successful through repeated tests.

In data processing, the rules in knowledge base are based on credibility. Therefore, the uncertain reasoning method is used to realize the uncertain reasoning engine. Establish the following fuzzy relation:

$$\mu_z = \{\mu_y \cdot W\} \tag{6}$$

Where μ_z is the conclusion vector and $\cdot$ is the logical operator. The reasoning mode of the system is obtained by solving:

$$\mu_y \rightarrow \mu_{CF} \rightarrow \mu_z \tag{7}$$

Where, μ_y represents the vector after quantification of forward reasoning conclusion y, namely:

$$[\mu_{y_1}, \mu_{y_2}, \mu_{y_3} \ldots, \mu_{y_n}]^T \tag{8}$$

W is the weight vector $[w_1, w_2, w_3, \ldots, w_n]$. Order:

$$\mu_p = \mu_y \cdot W \tag{9}$$

Suppose μ_p is a weighted resultant logic formula, then:

$$\mu_p = \sum_{t=1}^{n} w_i \cdot \mu_y \tag{10}$$

The design of the system includes the overall program architecture, network architecture, database structure and the program design of each functional module. Through the design of the system to more clearly describe the business logic relationship, the following is the construction of the teaching evaluation system in the system. The system provides a personalized interface for users according to the requests, user categories and access rights of system users, which is convenient for users to operate and maintain. The client does not need to install any client software, and has good unity. The web-based teaching evaluation, analysis and management system adopts the three-tier architecture of browser/web/database. Browser provides a browsing mode, which belongs to the client operation layer, and is mainly responsible for submitting the system data and displaying the final processed results of the system. The web layer, also known as the middle layer, is responsible for system business processing and data format conversion. In order to improve the stability and

efficiency of the system. The business logic class and database operation jointly provide the completion of business processing and data transmission. In traditional development, the data is directly fed back to the data operation control of the client, and the data in JSON format is generated and provided to the client. After submission in JSON format, the client can use the rich client technology to receive the data, which greatly improves the performance of the system. The database layer is responsible for the data storage of the system. The database management system adopted by the teaching evaluation management system based on extjs technology is SQLServer2005 to ensure the storage of data. The system can well meet the requirements of integration with other systems by adopting framework integration technology. The specific architecture of the system is shown in Figure 3 below.

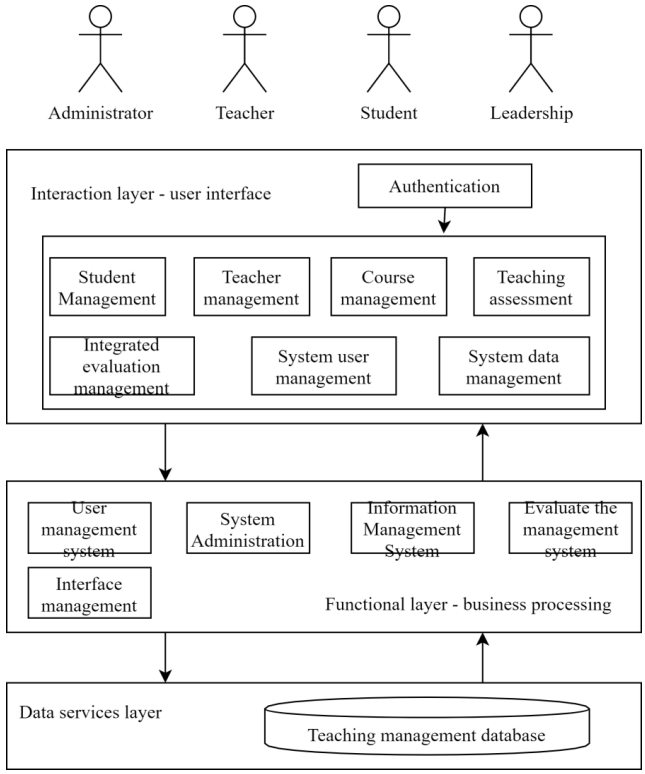

Figure 3: overall architecture of teaching evaluation and analysis system.

4 RESULT ANALYSIS AND DISCUSSION

In order to verify the comprehensive performance of the system, five groups of data, including glassidentification and vowl data sets in the database and letter, satimage and vehicle data sets in the statlog database, are selected for the experiment. Each data set consists of a training set and a test set. Their details are as follows:

- Glass dataset: contains 6 categories, 114 training samples, 100 test samples, and each sample has 9 attributes;
- Vehicle data set: it is a data set about vehicles. The number of categories, training samples, test samples and dimensions are 4, 312, 254 and 8 respectively

- Vowel dataset: it has 11 categories, a large number, 13 attributes, and the total number of samples is 846, of which 125 are training samples;
- Satimage dataset: the number of categories contained in the dataset is the same as that in the glass dataset, which is 6, but it has 36 attributes and 6435 samples (300 test samples, which is much larger than that in the glass dataset);
- Letter dataset: it contains the largest number of categories and samples, 26 and 400 respectively, and the number of attributes is 16. The basic information of the five groups of supply data sets is summarized as shown in the figure:

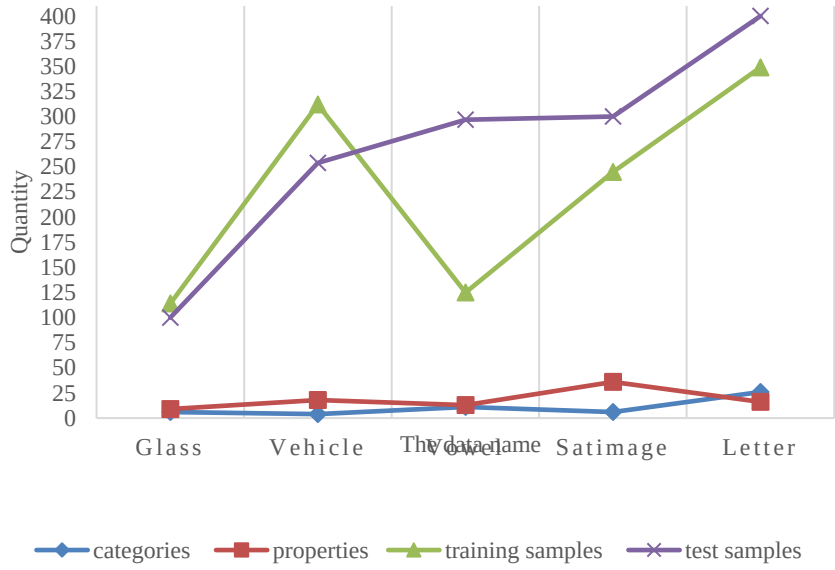

Figure 4: Basic information of simulation experiment data set.

Figure 4 the data in some data sets are original data without normalization, while SVM is sensitive to classification data, that is, whether the data is normalized or not has a great impact on the classification effect. Therefore, before the classification operation, this paper uses formula: $x = \frac{x - x_{\min}}{x_{\max} - x_{\min}}$ to normalize these data sets so that their value range is between[-1,1].

The data throughput and response time of the system can reflect the operation performance of the system. The following takes 20, 30, 70 and 100 concurrent users as an example to test the operation of the login system. As can be seen from Figure 5, when the number of concurrent users is less than 20, the average response time of the system is less than 5 seconds, and the corresponding transaction completion rate is 100%. When the number of concurrent users increases to more than 50, it can be seen that the response time of the system has increased significantly, but it is also within the allowable range. This shows that the teaching evaluation management and analysis system based on J2EE can still run in a good state in response to more user operation requests[. The system function test has achieved a stable 7*24-hour fault-free operation mechanism. Thus, it is determined that the operation stability of the management system is relatively high.

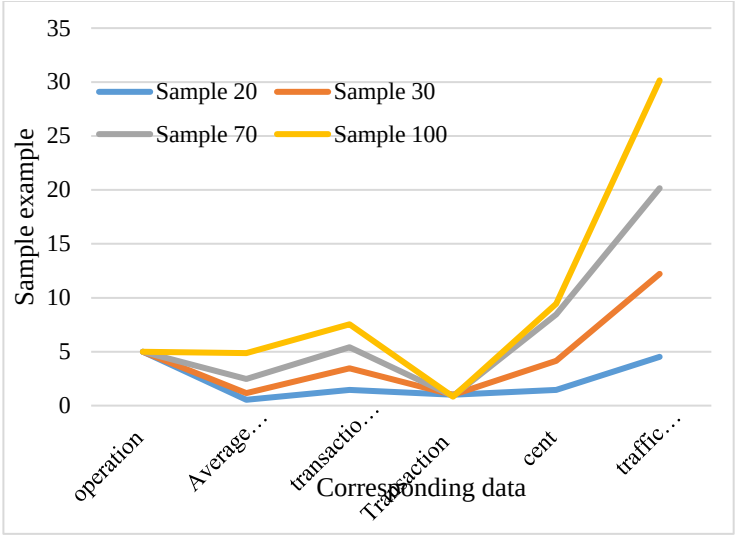

Figure 5: user concurrency test results.

In order to make the experimental results more descriptive, this paper uses ovr method, ovo method and the data algorithm proposed in this paper to conduct 30 experiments on the selected five data sets respectively, records the classification time and accuracy of each experiment, and calculates the average value of the 30 experimental results. In the classification problem, the classification time is another important criterion to evaluate the comprehensive performance of the algorithm, and the most important index is the training time. In order to better compare the three algorithms, the simulation experiment counts their training time and testing time respectively. Figure 6 and Figure 7 show the time consumed by the three algorithms in the training phase and testing phase respectively.

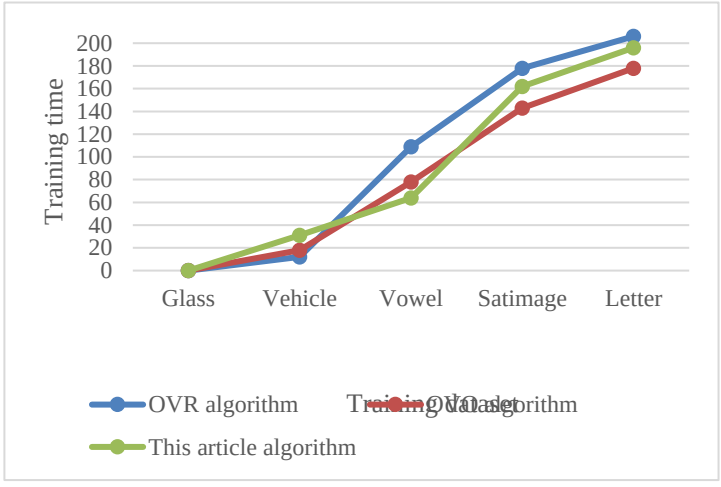

Figure 6: Comparison of training time of three multi classification algorithms.

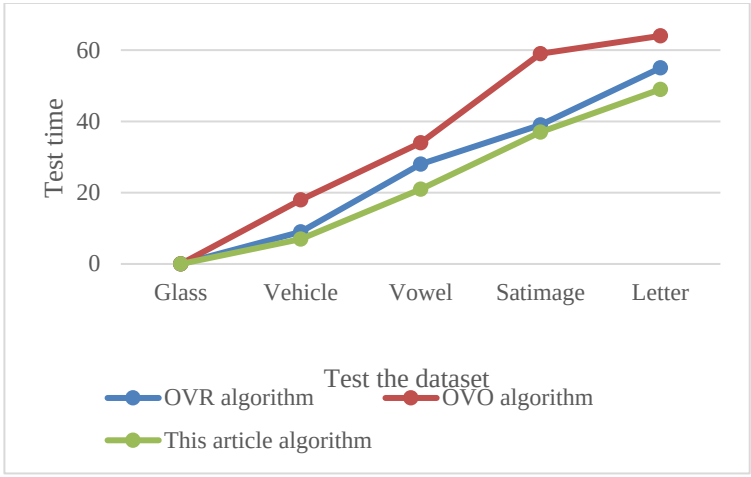

Figure 7: test time comparison of three multi classification algorithms.

From the experimental results in Fig. 7 and Fig. 8, we can draw the following conclusions:

- At present, there is no certain parameter theory used to determine the multi classification algorithm in system construction and use. In order to find a more reasonable parameter, the method that can be adopted is to test many times within a certain numerical range, and then select the better one.
- When training classifiers, although the number of classifiers in ovr method is small, each classifier needs all samples to participate in the construction of the optimal hyperplane, and the solving process takes more time. While ovo method needs to construct a large number of classifiers, it is simpler for each classifier to require only two classes of samples to participate in the solving process, so that the final overall time is less. In addition, the method proposed in this paper under the fusion of media skills andmessage disposal tech needs to calculate the relative distance between each two categories, so it takes longer than ovo method in the training phase, but less than ovr method.
- In the test phase, the algorithm in this paper has improved both in the depth of the system and in the arrangement of the structure. The test samples need to pass through the least number of classifiers, so the test time is the shortest.
- The increase of the number of training texts will increase the amount of calculation in the classification process, and make the training time and testing time of the classification algorithm longer.

In general, the incomplete bt-svm algorithm based on relative distance has improved both the time consumption in the classification process and the accuracy of the classification results, which shows that the algorithm is effective and feasible.

5 CONCLUSIONS

The reform and development of singing instruction in higher educations and universities can not be separated from the innovation of teaching methods. At the same time, it also needs to introduce diversified teaching means to assist the development of teaching activities. media skills andmessage disposal tech are the opportunities and necessary tools to improve singing instruction, which can

facilitate the development of teaching activities, break through the traditional vocal music education mode, break students' traditional thinking, and promote singing instruction innovation. This paper puts forward the construction and use optimization of higher education singing instruction system integrating multimedia andmessage disposal tech, carries out the double test of media skills andmessage disposal tech, realizes the construction and use of higher education singing instruction system, and finally carries out simulation test and analysis. Simulation results show that the proposed algorithm has a certain accuracy, which is 10.34% higher than the traditional algorithm. The system uses the working principles of the two technologies, through system demand analysis, system design, etc., uses SVM as the overall infrastructure of the system, uses the framework to provide support for the persistence layer, and interacts with the database to achieve various functions in the system, improve the quality of the teaching system, and improve the singing instruction level in higher educations and universities. The organic integration of media skills,message disposal tech and singing instruction in higher educations and universities will make great changes in all aspects of traditional singing instruction, open up a new path for students' active and creative vocal music learning, realize the modernization of music education, and improve the quality and level of music education in China.

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