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Retraction

Retracted: The Dilemma and Countermeasures of Music Education under the Background of Big Data

Wireless Communications and Mobile Computing

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope

(2) Discrepancies in the description of the research reported

(3) Discrepancies between the availability of data and the research described

(4) Inappropriate citations

(5) Incoherent, meaningless and/or irrelevant content included in the article

(6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

In addition, our investigation has also shown that one or more of the following human-subject reporting requirements has not been met in this article: ethical approval by an Institutional Review Board (IRB) committee or equivalent, patient/participant consent to participate, and/or agreement to publish patient/participant details (where relevant).

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] J. Han, "The Dilemma and Countermeasures of Music Education under the Background of Big Data," *Wireless Communications and Mobile Computing*, vol. 2022, Article ID 8341966, 12 pages, 2022.

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Research Article

The Dilemma and Countermeasures of Music Education under the Background of Big Data

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The fundamental subject matter in the area of quality research in education is music education, which is significant. Based on a big data theory, this study proposes a data management platform of music education that can use data analysis techniques to perform analysis and research on the situation facing music education. According to the layered concept through a demand analysis of the music education big data analysis platform, the model divides the platform into a data support layer, data storages and calculation layer, platform function layers, and platform application layer. Based on a platform function layer, the technical route is formulated, and functional modules are designed to solve the issue of quantitative data analysis. The plan uses the data aggregating component to combine music data into a real-time data stream for 3D visualization simulation and then distributes a data stream using messaging middleware. Through a real-time computing framework, the downstream completes a real-time calculation of musical information. Weak and strong real-time needs for music apps can be processed using features. The greatest average relative inaccuracy of the model, as determined by testing a simulation verification module, is 5.1374 percent, and getting the specifics of the visualization work using getViewTaskInfo is a trustworthy technique. It successfully encourages the capacity to overcome the challenges of music education in order to achieve the accuracy standards of high-quality music education.

1. Introduction

Art education is an important part of education, music is the basic unit of art, and music education is the basic content of quality education, which plays a pivotal role in the all-around development of people [1]. Not only that, in primary and secondary education, music education plays an important role in cultivating students' artistic literacy and improving their character [2]. However, there are also some problems in the music education of primary and secondary schools [3]; for example, people generally do not pay attention to art education, and they have little understanding of music education, and do not recognize the humanistic function of music education [4]. It is believed that learning music is of no use to students' learning and development; the conditions for music education in primary and secondary schools are relatively poor, and such teaching conditions

are not conducive to the development of music education; and the overall quality of primary and secondary school students is generally low [5], and the distance is comprehensive. There is still a long way to go to develop talents; the professional quality of music teachers in primary and secondary schools is generally low; there is no overall control over the development of music education; and teaching skills are relatively weak [6–8].

With the continuous improvement of the level of music informatization, music information begins to reflect the characteristics of large data volume, high real-time performance, and heterogeneous data types [9]. The traditional stand-alone, structured music information systems used by music companies have not been optimized and improved for these new features of music information [10]. Since whether music information can be efficiently processed will affect the competitiveness of music companies and thus the

development of the entire music field, there are extensive studies on related topics in both industry and academia [11]. However, related music big data platforms still have deficiencies in real-time computing, platform management, and data collection [12].

This article's goal is to present a summary of current theories about motivation for success from the viewpoints of music education. Motivation can also come from outside the musician, such as the desire to get good grades, win a competition, or make a living. The enjoyment of an activity and other factors, such as the proportion of effort to reward, contributes to a person's degree of motivation.

1.1. Contribution of This Study. Music education makes the most outstanding contributions to education's higher cognition and other excellent objectives. Music education contributes to the survival of a society, as well as the existence of regeneration and the legitimization or approval of those who are already in place, as well as their integration into the system.

2. Related Work

Music education is a form of education in the field of esthetic education. Therefore, it is also an important part of quality education [13]. People often only pay attention to the external value of music education but ignore its internal esthetic value, ignore the importance of music education in improving students' creativity and beautifying students' personalities and many other aspects, and ignore the cultivation of students' interest in learning music [14–16]. Music big data has a variety of data structure types, including structured, semistructured, and unstructured data. Managing these disparately structured data is very difficult. Structured data is suitable for the logical expression and realization of the two-dimensional table structure, but a large amount of semistructured and unstructured data such as text, pictures, and charts generated in logistics is difficult to logically express and realize with the two-dimensional table structure. Processing this data is a key problem that needs to be solved [17].

At present, the research on the current situation of the implementation of regional music curriculum standards is blank. Tang [18] found that most of the research focused on Han areas and economically developed areas and focused on theoretical discussions. Wu et al. [19] believed that during the entire ETL job configuration process, the system automatically verifies each node, and the contents of the verification include whether the node is missing a parent node, whether the node is missing fields, and whether the field type is correct, whether the job has only one output node, whether the job has at least one input node, whether the job forms a closed loop, and whether the job is connected. Yang [20] believed that in the process of job editing, the user can conduct a trial run on the current node. During the trial run, the original data will be sampled and collected to reduce the time-consuming of the system trial run.

Fan [21] took the improvement method of Six Sigma DMAIC as the leading method to find the significant factors affecting the effect of music education and obtained the optimal processing parameter setting through experimental design. Lv and Xu [22] designed a two-stage parameter optimization method to improve the quality of music education; that is, in the first stage, a big data network was used to build an approximate fitting model of the printing process, and a parameter design interval was obtained; in the second stage, the response surface method was used to establish a more accurate model to further optimize the parameters of the music education process. The trial operation will output corresponding results for each node, and users can check whether the data processing process is correct by checking the results. During the ETL test run, the system-defined rules are parsed into rules that can be used by Spark so that jobs can run calculations on the Spark platform. This class is a processing class that persists metadata-related information to the system platform. The saveOriginTable method in this class is used to persist the read file data table metadata to the system platform. At the same time, this class implements the ROriginData-SerVice interface [23]. Finally, after the job editing is completed, the user needs to set the job timing schedule time, and the scheduling records are displayed on the system platform [24, 25].

Using the publicly available cardiotocography (CTG) dataset from the University of California, Irvine Machine Learning Repository, this study examines the effects of linear discriminant analysis (LDA) and principal component analysis (PCA) on four widely used machine learning (ML) algorithms: decision tree inductions, support vector machine (SVM), Naive Bayes classifier, and random forest classifier [26]. Table 1 shows the summary of existing methodologies and their drawbacks.

2.1. Problem Statement. It appears that implementation of music education in secondary schools is not being carried out in full as anticipated under the integrated curriculum for secondary schools, which is a major source of frustration for music teachers. Today, secondary school music classes are rarely taught by educators with formal music expertise. Because of this, there is no set curriculum for music education, and the teachers and students are in complete charge. Also, some school music teachers lack the expertise in music theory and performance necessary to teach their subjects successfully. In their approach to music education, they are quite unfriendly and pessimistic. This perspective has negative repercussions for the ability of music education to help kids develop emotionally, spiritually, intellectually, and physically, all of which are goals of a national education system. The negative impacts of music education are another factor that prevents it from being widely used in classrooms. The lack of backing from both higher-ups and colleagues is one such factor.

3. Clustering Statistics of Music Education in the Context of Big Data

3.1. Big Data Hierarchical Architecture. A big data hierarchical site contains multiple navigation menu items and a

TABLE 1: Summary of existing methodologies.

S.no	References	Methodologies	Drawbacks
1.	Jiang [13]	Massive open online courses (MOOCs) use a blended learning method that combines online learning before class, in-person instruction, and post-class review and consolidation.	Not able to offer individualized instruction or access to a private tutor. Offering MOOCs can be difficult due to language barriers
2.	Yuxiang et al. [14]	Based on distributed denial of service (DDos) analysis, suggests a big data information security risk methodology design and mitigation strategies.	Genuine users may not be unable to find the data or take the necessary actions if they cannot access the resources. Businesses might be unable to complete time-sensitive tasks.
3.	Huang and Zhang [15]	Analysis of the current evaluation index system (EISs) of classroom music instruction in universities.	
4.	Lei [16]	Proposed a method for applying AI technology in a practical setting for music educators.	Artificial intelligence that can keep up with human performance is a significant technological achievement.
5.	Shao and Cheng [17]	Employed a recently proposed technique for global navigation satellite system reflectometry (GNSS-R)	It is not precise enough to meet the needs of every stage of flight. Therefore, GNSSR systems necessitate augmentation systems as well.
6.	Wu et al. [19]	Through a combination of literature review and case study, this article argues for the value of music online education network (MOEN's) virtual classroom platform for online music instruction.	There are certain disadvantages to taking music instruction online. Helping a pupil improve their method without physically guiding them through correcting their postures (arms, wrists, elbow, and fingers) and teaching them how to hold and play the instrument can be difficult.
7.	Fang [21]	Established the superiority of computers music technology in a reform for college music teaching modes by investigating the use of a multimedia computers music teaching systems and a harmony teaching course at universities.	The role of the teacher changes from instructor to facilitator while creating a multimedia learning experience.
8.	Lv and Xu [22]	This article employs literary analysis, survey research, and mathematical statistics.	Dance aerobic may not be a good idea for people with bone disorders like osteoporosis or arthritis because of all the jumping, stepping, and hopping involved.
9.	Zhuo [23]	To assure the holistic development for learning, sports, attractiveness, and work is our nation's educational aim.	Assisting a pupil with their technique can be difficult if you cannot get down on their level and aid them physically with their postures
10.	Qian [24]	Proposed a strategy for incorporating big data technologies into the reform for applied economics education at universities, and it assesses the existing state of this field of study at universities across the country.	Data analysis using large datasets compromises individual confidentiality. You can use it to alter your client database.
11.	Tang and Ren [18]	In an effort to promote the growth of ethnic minorities' musical traditions, this paper proposes a strategy for doing so.	It could lead to a further polarization of society. Research based on massive amounts of data has limited immediate value.
12.	Reddy et al. [26]	The min-max standard scaler normalization method is used to standardize the input dataset.	The "curse of dimensionality," which occurs when there are too many input features, makes predictive modeling tasks more difficult.

navigation hierarchy relationship. Navigation is divided into two types: directory and page. A page menu item corresponds to a page, and each page contains multiple charts. Each chart corresponds to a query rule and a display rule. The platform utilizes the efficient real-time computing and processing capabilities of the real-time data stream computing framework to perform distributed real-time processing of massive music information data; improve the overall computing speed of the music information system support applications with low latency, high concurrency, and high time requirements; and can monitor in real time. Offline data processing needs to store the data in the disk first and then fetch the data for calculation.

$$\text{wig}(n(i,j) - s(i,j)) = \frac{\text{wig}(i,j) - \text{wig}(n,i)}{\text{wig}(n,j)}, \quad (1)$$

$$\left[\sum \frac{1}{2} W^t W, \sum \frac{1}{3} W^t W, \sum \frac{1}{4} W^t W, \cdots, \sum \frac{1}{n} W^t W \right] \quad (2)$$
$$\in \text{hbrs}(w, w').$$

There is no need to write data to disk first, which saves a lot of disk I/O overhead, as well as the time overhead required for disk read and write and software applications to interact with physical disks. The big data platform for music information provides both offline and online data processing methods. The platform can perform both real-time computing tasks and offline computing tasks. Tasks are independent of each other in the form of exclusive containers and can also collaborate.

$$\sum\left[\partial y\left(W^t x - x(t)\right) - \frac{1}{\partial x \partial t}\right] - \sum \frac{1}{2}\partial W^t \partial W = \frac{\partial w}{\partial x}, \quad (3)$$

$$\text{ndtest(bu, bv)} = \begin{cases} \dfrac{\text{bu-bv}}{\text{nd}}, & \text{if}[\text{bu-bv} < 1] \\ \dfrac{\text{bu + bv}}{\text{nd}}, & \text{if}[\text{bu-bv} > 1] \end{cases}. \quad (4)$$

In the Spring Cloud framework, when the Spring Boot service is used to start, the instance information is automatically obtained and filled into the Log4j2 custom configuration of the instance by obtaining the application context through the class configuration. In the platform, to avoid log circular processing, any instance and task except the log service can use the Log4j2 log tool to bind the Kafka message middleware as the log stream output pipeline, configure various output levels, and add log services downstream archiving can be achieved, and abnormal logs can be monitored in real time.

$$\sum_{i=1,j=1}^{i,j} \frac{1}{\log i - \log j}$$
$$\cdot \sqrt{\left(\log(i) - \log(j)_{d-1}^{d+1} - \log(i-j) - \log(j)\right)^2 + 1} \subseteq \log i, \quad (5)$$

$$\sum \frac{\nabla b(i,j)}{\nabla a(i,j)}/|b-a| \longrightarrow \sqrt{\frac{db(i,j)}{da(i,j)}}/w(i,j)_{d-1}^{d+1}/|i-j|. \quad (6)$$

The platform should be placed in the intranet to protect some important interfaces of each system and framework from being exposed; the big data basic system uses the Kerberos authentication cluster of the Hadoop and Spark frameworks to limit job submission and data management; the messaging middleware uses the integrated SSL/SASL/ACL security mechanism and verifies messages; and the big data service management system uses the OAuth2.0 authentication mechanism integrated with the Spring Cloud platform to verify the user's authority in the web system to limit user behavior. The execution record table is mainly used to record whether the job is successfully executed and the error information after the execution fails. The data in this table is mainly used to locate the cause of job execution
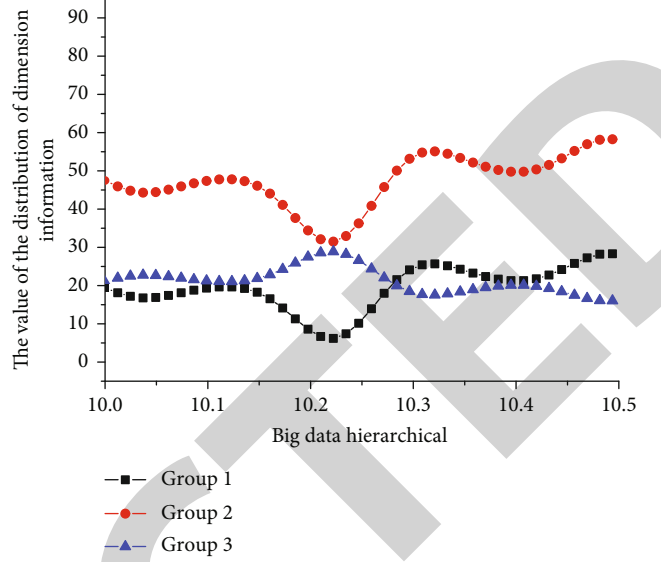

Figure 1: Big data hierarchical dimension information distribution.

failure and to evaluate the stability of the system through statistical analysis of the data.

$$\frac{c-b-a}{\nabla\{c(i,j)-a\}} - \frac{\nabla c(i,j)}{\nabla\{c(i)-c(j)\}} = \frac{|a|}{|c(i)-c(j)|}, \quad (7)$$

$$\sum i-n+1 \in C(i), \text{sim} = \frac{1}{2}v(i-n+1,j)^t v(i-n+1,j). \quad (8)$$

After crawling all the music texts on the official website through web crawlers, we save them in Excel and map the collected and downloaded music text information to the columns on the official website one by one, including the specification and supplement of the issue number, attachments, and forms, as well as the keywords, the type of official document, and the labeling of the issuing department.

A data component called a big data dimension hierarchy is used to categorize data into ranges of values. There may be several levels in a dimension hierarchy, and each level has its own set of bins. Each lower-level bin must roll up into the corresponding higher-level bin in a tidy manner.

The job scheduling table is mainly used to record the scheduling time, scheduling frequency, and notification method of scheduling failure information in Figure 1. The data subscription service performs threshold judgment on chart data according to the scheduling time configured for each job in the table. The model dimension table is used to store the dimension information defined for the model, in which the detail field represents the dimension details, and the data structure is JSON. The type field indicates the dimension type, including character dimension, numeric dimension, and time dimension. When the dimension is a nontime type, the value in the detail field when the key is diet is a data dictionary, and the data structure is JSON, which is used for content conversion when the dimension value is displayed. When the dimension type is time type,

the value corresponding to the data storage format in the detail field is the time storage format, and the value corresponding to the key date display format is the time display format.

3.2. Dimensional Analysis of Music Big Data. The music big data dimension terminal removes the event from the channel and hands it off to an external system (such as the HDFS distributed file system) or forwards it to the Flume source of the next Flume agent in the stream. Due to the characteristics of passive storage of the Flume channel and push events downstream, it is suitable for the situation where there are many producers and few consumers, so it generally provides the function of data aggregation in the data system. Each ETL job corresponds to a unique data model, a site can be configured with one or more data models, and a data model can also be used by multiple sites at the same time.

$$
\arg\max \left\{ (\text{sigma}(i, j) - a) \right.
$$
$$
\left. - f'(\text{net}), \text{sigma}(i, j), \text{merg}\left(f'(\text{net})\right) \right\} \xrightarrow{f} \max(\text{net}, f),
$$
$$
(9)
$$

$$
\text{lodelta}(i, j) = \begin{cases} \sum \dfrac{\nabla b(i, j)}{\nabla \log(i, j)} \\ \sum \dfrac{\nabla b(i, j)}{\nabla a(i, j)} - \sum \dfrac{1}{2} \log(i, j)^t \log(i, j)) \end{cases}.
$$
$$
(10)
$$

User management includes user access monitoring and user data statistics. User access monitoring is mainly responsible for recording the time and other access data of users accessing systems, sites, and pages. The user data statistics is responsible for the statistics of the recorded results as data reports to display on the data site. Each topic can have multiple partitions for maintenance to make the system stable. Like many publish-subscribe messaging systems, Kafka stores source message data. Producers write input to topics, while consumers read data from topics. To ensure the robustness of the topic and the characteristics of multisource output, the topic generally contains multiple node partitions and will be replicated.

$$
\text{simu}(\text{net}(a, b) - \text{sima}(a, b) - \text{simb}(b, a))
$$
$$
= \frac{\exp(-\text{verb}(i, j)) + 1}{\exp(-\text{vera}(i, j)) - 1},
$$
$$
(11)
$$

$$
\begin{cases} \dfrac{\min(-\text{verb}(i, j)) + 1}{\max(-\text{vera}(i, j)) - 1} < 1 \\ \dfrac{\min(-\text{verb}(i, j))}{\max(-\text{vera}(i, j)) - 1} - \dfrac{\min(-\text{verb}(i, j)) + 1}{\max(-\text{vera}(i, j))} > 1 \end{cases}.
$$
$$
(12)
$$

By default, a topic named consumers_offsets records the offsets of each partition's consumer group, and each consumer is responsible for tracking them in each log (a log is a collection of message sequences representing messages within a topic partition) to consume the message (i.e., the offset at which the message was allocated). Using this mechanism allows Kafka to retain the most message data with the least cost, so it can support a large number of consumer subscriptions.

$$
v(i, j)^t v(i, j) = \frac{[1 \quad \min v(i, j) - 1] \cup [1 - \max v(i, j)]}{[1 \quad 1 + \min v(i, j)] \cap [1 - \max v(i, j)]},
$$
$$
(13)
$$

$$
\left\{ \sum u(i, j) - \Delta w(i, j) \right\} = \text{sig}\left\{ \sum s(i, j) - a \frac{d(i, j)}{\text{du}(i, j)} \right\}
$$
$$
- \text{sig}\left\{ b\sqrt{\frac{d(i, j)}{\text{du}(i, j)}} \right\}.
$$
$$
(14)
$$

Each physical machine in the cluster can provide its computing performance and storage capabilities. Hadoop itself does not rely on hardware to provide high availability but provides high availability services by detecting and handling failures and exceptions at the application layer. The Hive data warehouse utilizes Hive SQL to read, write, and manage large datasets residing in distributed storage, which can project structure onto the stored data.

3.3. Statistics of Music Element Direction. In this paper, the lxml library is selected to parse the music element web page and to obtain the content of the music text. Different types of web pages can parse different words text content. The basic information of music text includes "title," "subtitle," "post time," and "text content"; it views the source code of the web page in Chrome developer tools and by parsing the text nodes or attributes in its specific DOM structure. Part of the music text obtained by parsing the web page is shown, and the music texts under each column are, respectively, stored in the corresponding.txt texts. The selection function of XPath is very powerful. It provides very concise path selection expressions. In addition, it also provides more than 100 built-in functions that can be used for numeric, string, time matching, node, and sequence processing; almost all nodes we want to locate can be selected using XPath.

According to the MySQL database configuration information, initiate a connection request to the remote database server in Figure 2. If the connection fails, return to the configuration interface to remodify the configuration until the connection is successful. After the big data service management system is added to the platform, the system administrator does not need to care about the underlying architecture and application implementation and can view, monitor, control, and manage the platform at any time through the web page. The big data service management system can not only provide visual services for the platform but also easily integrate the framework technologies in the big data basic system by using components such as Spring for Hadoop, Spring Data Jpa, Spring Data Redis, and JSch.
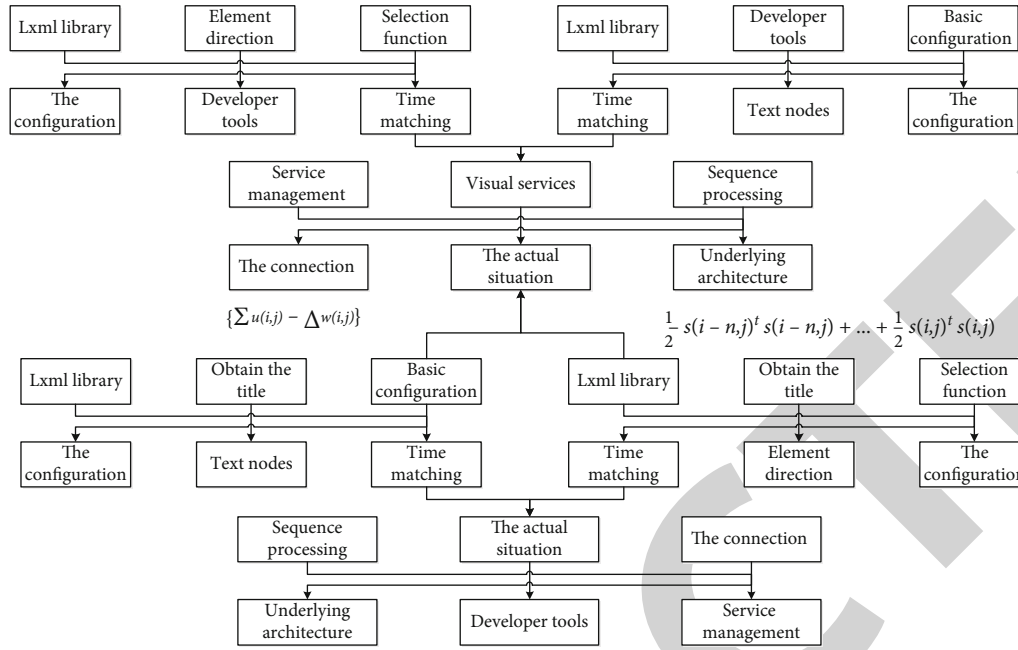
FIGURE 2: Music element direction statistics.

3.4. Frequency Distribution of Music Words. According to the actual situation of students mastering music knowledge, teachers can record a 20-minute short video before class, including the origin of folk songs, regional classification, singing skills, and styles, and send them to the class group. The cluster manager allocates worker nodes in the cluster and executes the tasks in parallel. The worker nodes report the task execution status to the cluster manager. And the worker nodes can communicate with each other.

Figure 3 encapsulates the underlying graphics interface so that the user can realize the rendering of a three-dimensional scene without having to master complex graphics knowledge. In js, the order in which the model is loaded into the browser is as follows: first, go to the server to find the model file and download it locally; then, parse the model file to generate a mesh model; and finally render the 3D model to the browser. The main purpose of web page parsing is to extract valid text nodes from the source code of web pages. This process can be divided into two steps: web page structure analysis and text node extraction. By analyzing the structural characteristics of HTML web pages, parsing rules are generated to obtain web pages. As a parsing library of python, lxml supports the parsing of HTML and XML, and supports the XPath parsing method, and the parsing efficiency is very high.

4. Dilemma and Countermeasure Research Model Construction of Music Education under the Background of Big Data

4.1. Music Education Data Fitting. In the application of music education data, to test the students' actual mastery of the knowledge points in this lesson, teachers can send pre-designed questions to students' tablets in the form of screen-
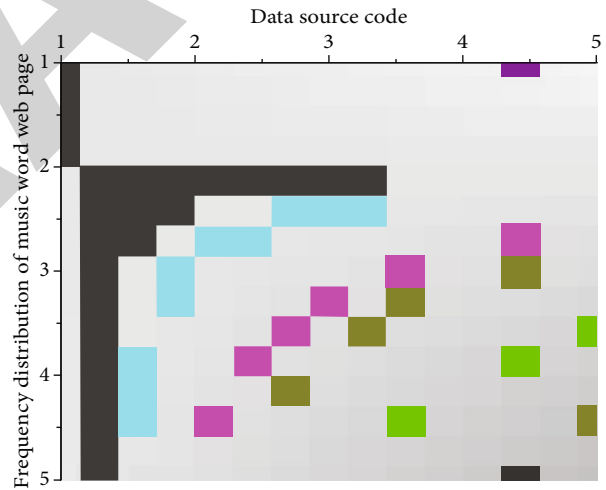

FIGURE 3: Frequency distribution of music word web page source code.

shots through the iPad terminal. For these structures, CATIA V5 R20 is used to complete the static modeling and assembly work of each part; then, it is converted into a common.stl format and imported into 3ds Max for lightweight processing and texture baking; finally, the js encodes the behavior of the model and loads it into the 3D scene of the music education production line to simulate the running state in Figure 4 of the music education production line.

Of the total number of students surveyed, a total of 18 can play an instrument. Among them, 3 people have learned piano, accounting for about 16.7% of the total; 8 people have learned the electronic organ, accounting for about the total; 5 people have learned the guitar, accounting for about the total; and 2 people have learned the drums, accounting for
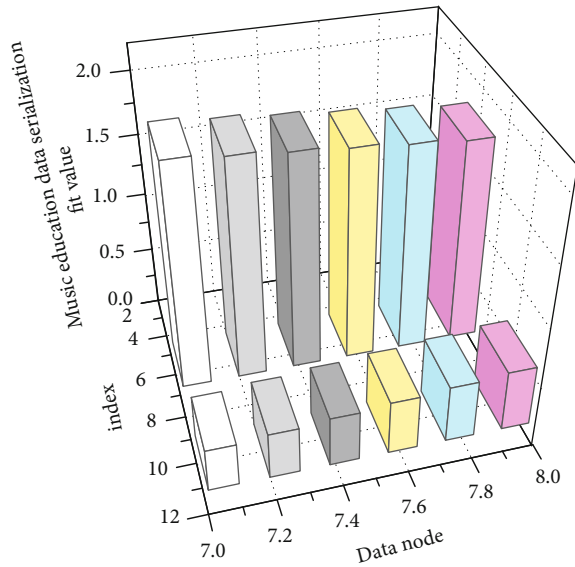
Figure 4: Music education data serialization fitting.

about the total. But these students have only had a short-term musical instrument learning experience and did not insist on long-term learning. Livy is an open-source REST service based on Spark, which can submit code fragments or serialized binary code to the Spark cluster for execution through REST. From the basic functions provided by Livy, we can see that Livy covers the two processing interaction methods provided by native Spark. Different from native Spark, all operations are submitted to the Livy server through REST and then sent to different Spark clusters by the Livy server for execution.

Students basically have no music learning experience and no corresponding music foundation, so the quality of music is generally low. Figure 5 shows that 23 students only know the musical notation but cannot sight-sing, accounting for about 5.85% of the total, and only 11 students who know the musical notation can sight-sing according to the correct pitch and rhythm, accounting for about 2.79% of the total. The remaining 359 people do not have the ability to read music and sight-sing at all, accounting for about 91.3% of the total. Spark streaming provides the highest data throughput in the current real-time computing framework through the data processing mode of RDD, and it has a large number of predefined stream processing interfaces, which is convenient for users to define data stream topology.

4.2. Music Co-Word Cluster Analysis. The music co-word clustering analysis modeling module mainly includes the analysis process, analysis modeling, and analysis result display. The analysis process mainly uses process modeling tools to help users establish the construction process of the corresponding business model so that users can quickly clarify their modeling thoughts. Analytical modeling mainly completes the analysis of different businesses through the data analysis algorithms in Table 2.

In this survey, 176 students thought that the classroom atmosphere of music class was average, accounting for about 44.8% of the total; 153 students thought that the classroom atmosphere was dull, accounting for about 38.9% of the total; and only 64 students thought that the atmosphere is relatively active, accounting for about 16.3% of the total. Analytical modeling includes basic analysis tools such as algorithm library and model library, supports Spark distributed memory computing engine, and facilitates data analysis in the music education industry; simulation modeling includes a 3D model library of music education production line equipment and scenes. It is used to quickly build a music education production line scenario; at the same time, it contains a big data-based SPI detection simulation verification model, which is used to verify the accuracy of the recommended results of the music education parameter recommendation model in the analysis and modeling. The core mechanism is to use the heartbeat packet to maintain the musicality of the service list from the registry and request the load balancer to filter out the service instance that best meets the requirements from the service list to achieve load balancing. Spring Cloud encapsulates Ribbon by default to implement the load balancer in Figure 6 through ZoneAwareLoadBalancer. The load balancing strategy used is ZoneAvoidanceRule to provide efficient load balancing of zone-aware division.

Among the total number of people surveyed, 320 people like pop music, accounting for 81.4% of the total; 43 students like campus songs, accounting for 10.9% of the total; 12 students choose folk songs, accounting for about 10.9% of the total 3.05% of the total; and 18 students said they liked opera, accounting for about 4.58% of the total. It can be seen that the vast majority of students like pop music. Therefore, it is particularly important for the nurtured music teachers to correctly guide students to learn and appreciate music that is suitable for their age and their physical and mental music.

4.3. Weight Distribution of Countermeasure Research Model. The countermeasure research model survey shows that 52.1% of the students indicated that the music class was often occupied; 19.3% of the students said that the music class was sometimes occupied; 20.8% of the students said that the music class was occasionally occupied; and only 7.6% of the students said that the music class was never occupied been occupied. The platform is divided into four functional modules, namely, business modeling, data modeling, analytical modeling, and simulation modeling. Among them, the business modeling module can help users quickly understand the relevant information of the music education business, such as business processes, business scenarios, and business problems, and provide business logic support for data models and analysis models; data modeling is mainly for business modeling analysis. For specific business problems, the business-related data is sorted out by data logic relationship and visualized statistical analysis and data preprocessing, to provide data support for analysis and modeling.

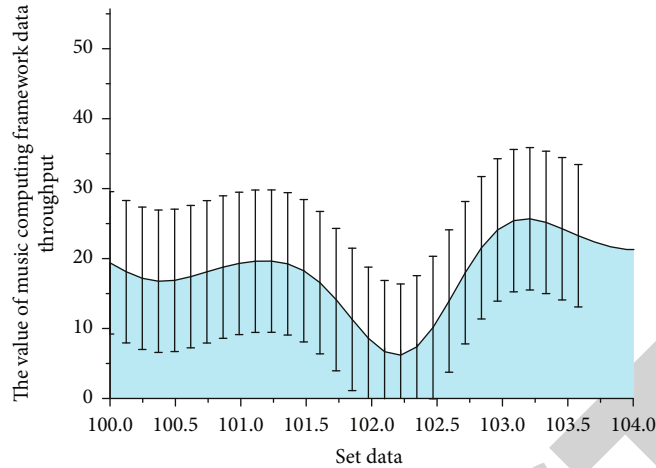In the single-layer authentication mechanism, the authority control needs to be completely controlled by the

FIGURE 5: Data throughput of the music computing framework.

TABLE 2: Music co-word clustering attributes.

Data number	Clustering percentage	Music co-word ratio	Paper pages
100	82.36191	0.67301	42
200	48.95968	0.42872	83
300	18.58561	0.21883	57
400	32.19066	0.54544	56
500	34.56706	0.93577	99
600	63.7697	0.81075	66
700	55.88327	0.04418	63
800	29.50155	0.60229	42

gateway, but after enabling the two-layer authentication in Figure 7, the authority control can be taken care of by each web module. Although the communication and interaction between the web gateway and each web module to retain authentication token information may increase network congestion after L2 authentication is enabled, these overheads are worthwhile for cluster security and permission control. According to the survey, 44 people said that their parents supported their music learning, accounting for about 11.2% of the total, and 298 people said that their parents did not support their own music learning, accounting for about 75% of the total number. 51 people do not care about their attitude toward music learning, accounting for about 12.9% of the total number. Among the 8 schools, the number of schools fully equipped with music equipment is 0. There are 2 schools with basic music equipment, accounting for 25% of the total, and 6 schools with less equipment, accounting for 75% of the total.

Unified proxy and forwarding of requests from each data access module, so from the perspective of Figure 8, there is no need to maintain instances of all data access submodules, let alone master each microservice interface, and just access the interface defined by the data access gateway. Most of the students have not participated in any form of extracurricular music activities, and there are as many as 223 students in this group, accounting for 56.7% of the total; 92 students say they sometimes participate in extracurricular music activities, accounting for about 23.4% of the total; and 53 students said they participated occasionally, accounting for about 13.5% of the total. There were only 25 students who regularly participated in extracurricular music activities, accounting for only 6.4% of the total.

5. Dilemma and Countermeasures Research Model Application and Analysis of Music Education in the Background of Big Data

5.1. Simulation of Music Education Countermeasures. This research investigation mainly adopts a combination of questionnaire survey and interview, with questionnaire survey as the main method, supplemented by interviews with music teachers in relevant schools. A total of 8 surrounding primary and secondary schools were involved, including 4 junior high schools and 4 primary schools. 400 questionnaires were distributed to students, 393 were returned, and 15 music teachers were interviewed. The survey content involves the following: (1) teachers: gender, age, educational background, professional level, professional title, whether they are full-time or part-time, and participation in music training during work; (2) students: the degree of love for music lessons, the ability to read music scores, the ability to perform, the type of music they like, their participation in music activities, and the attitude of their parents; and (3) schools: the degree of emphasis on music, whether music classrooms are equipped, the availability of music equipment, and the occupancy of music classes.

In the 8 surrounding primary and secondary schools surveyed, the total number of music teachers is 15. There are not only full-time music teachers but also part-time or nonmusic teachers who teach music lessons. Among these 15 music teachers, 12 are full-time music teachers, accounting for 80% of the total number, and 3 are part-time music teachers, accounting for 20% of the total number. Among these music teachers, 13 have a bachelor's
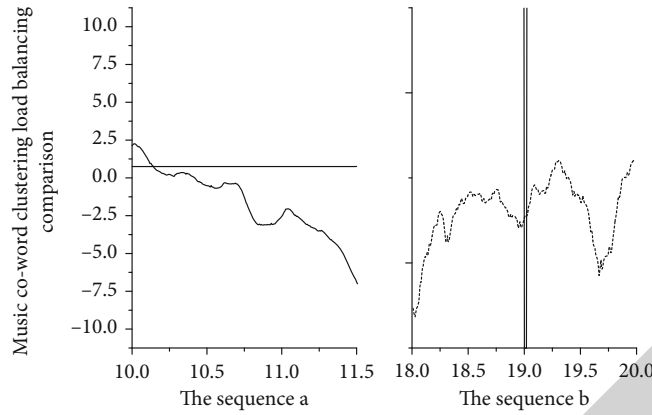
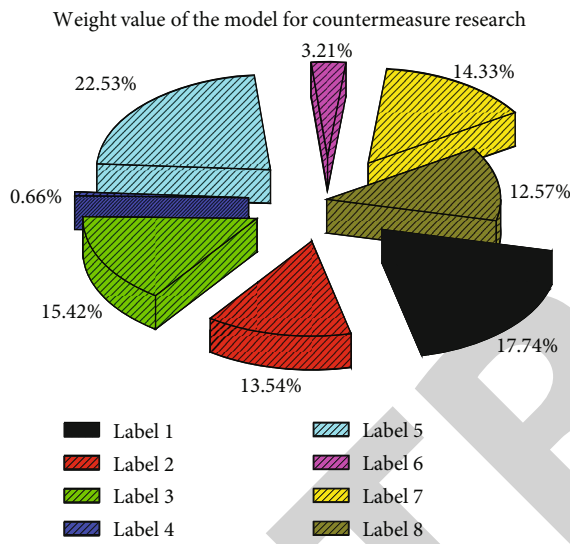FIGURE 6: Comparison of music co-word clustering load balancing.

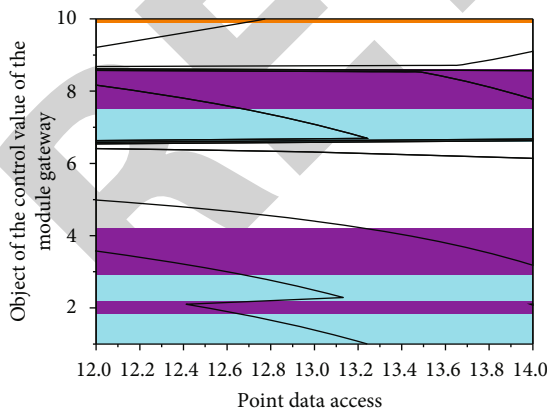FIGURE 7: Weight division of counter measure research model.

TABLE 3: Mapping relationship of music education strategies.

Music node	Teacher's age	Degree	Time weight	Mapping ratio
10	26	Bachelor	0.21309	0.6377
20	30	Bachelor	0.74246	0.55883
30	28	Master	0.33791	0.29502
40	22	Bachelor	0.08578	0.41198
50	22	Bachelor	0.52487	0.67301
60	29	Bachelor	0.43694	0.42872
70	25	Master	0.6661	0.21883
80	28	Master	0.11727	0.54544

Page editing is divided into page template selection and diagram layout. The templates in Table 3 are divided into three categories, namely, single-table query type, multitable query type, and overview type. The chart layout mainly includes the mapping relationship of different charts on the page and the record of location information. Among the 15 music teachers in the 8 schools surveyed, their average monthly salary is about 3,000 yuan, of which 12 have a salary of 2,000-3,000 yuan, and 3 have a salary of 3,000-4,000 yuan. Among them, 5 people think that the salary is too low, accounting for about 33% of the total number, and 9 people think that the salary is too low, accounting for about 67% of the total number. Overall, none of the 15 music teachers was satisfied with their current salaries. The bus module has written a unified interface/publishbusevent to transmit bus events to the Lotion system. After receiving the request, the interface encapsulates the parameters into the corresponding event and then calls the context.publishEvent (your-event) method to send the bus event. All projects that join the cluster need to add Kafka and bus dependencies and configure them to receive bus events.

FIGURE 8: Gateway control of big data access module.

degree, accounting for about 87% of the total, and 2 have a master's degree, accounting for about 13% of the total. It can be seen that the highest education of most music teachers is a bachelor's degree, and very few have a bachelor's degree or above (master's degree).

5.2. Example Application and Analysis. The music education platform searched with the subject word "big data education" and retrieved a total of 516 documents. After screening the documents, the number of documents was firstly compared and analyzed. The platform has written a support component lotion-message-bus-event to carry bus events,
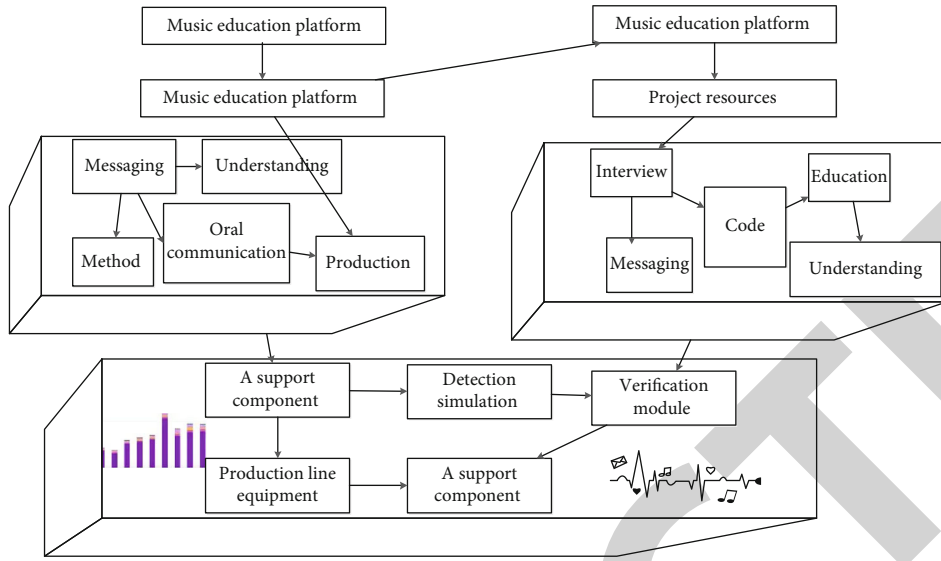
FIGURE 9: Simulation verification of music education platform.

and it is convenient to standardize the transmission and analysis of bus events by encapsulating bus events. This component includes two event types, BaseBusEvent and BaseMapBusEvent, which are used for simple messaging and map messaging, respectively. The event type needs to inherit RemoteApplicationEvent. This paper uses the interview method to select music teachers and some students from 12 primary and secondary schools surveyed. Through oral communication with them, we have a more in-depth understanding of the application of new media in music classrooms and teachers' and students' understanding of the application of new media to music classroom view. Firstly, the problems of resource waste in the traditional music education production line data analysis mode are analyzed, and then, the SPI detection simulation verification module is designed by introducing 3D visualization simulation technology, and the SPI detection simulation verification model based on big data is constructed. Finally, according to the key technology and modeling method of the virtual model of the music education production line equipment, the detection simulation verification module in Figure 9 is realized.

To verify the performance of the SPI detection simulation verification model based on big data, this paper selects 100 sets of processor-adjustable process parameters and their corresponding SPI historical detection data as the sample dataset to train and test the SPI detection simulation and verification model. Rights management includes three modules: rights application, rights distribution, and rights control. Permission application mainly includes the user's application for permission to create projects, access data sites, and edit projects and other project resources on the system platform. The permission assignment mainly includes system administrators assigning permissions to users to create projects on the system platform and project creators assigning project management permissions to users to facilitate project management. According to the data from 393 questionnaires, 198 students liked music class very much,
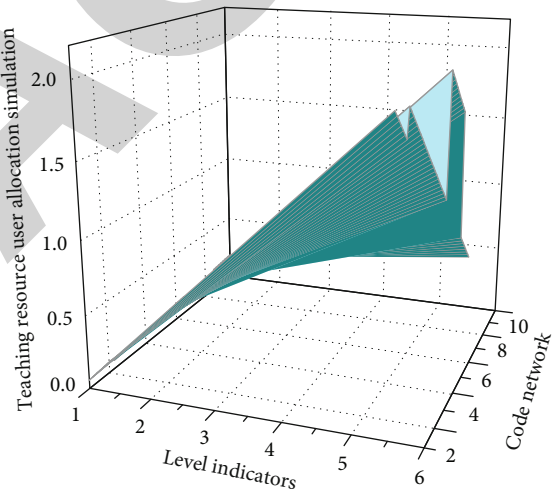

FIGURE 10: Simulation of teaching resource user allocation.

accounting for about 50%; 133 students said they liked music class, accounting for about 33.8%; 40 students thought it was average, about 50% of the total; and 22 students said they did not like music lessons, accounting for 5.6% of the total. It can be seen that more than 80% of the students like music lessons.

After the training is completed, the actual value of the model matches the simulated value. It can be seen that the SPI detection and simulation verification model based on big data has high accuracy. Further calculation in Figure 10 shows that the maximum value between the real value and the simulated value of big data training for average relative error is 5.1374%. Data subscription includes data report subscription and threshold alarm subscription. Data report subscription mainly includes the chart that the user chooses to focus on the data site and subscribes to the data of the chart. The chart subscription configuration content includes chart data query condition configuration, data report

sending template selection, data report sending time, and recipient-related information configuration. This class is the basic class for data processing, and all processing methods related to data sources are processed in this class. The database access method in this class is a method for processing database table access, and the parameter to DataBaseVo entity class is used to receive front-end configuration information. At the same time, this class is associated with the DBInfoUtil class and the ROriginDataService interface. Among the 15 music teachers, 1 often participated in music professional training, accounting for about 6.7% of the total; 4 people participated, accounting for 26.7% of the total; 7 people participated occasionally, accounting for about 26.7% of the total number 46.7% of the participants; and 3 people never participated, accounting for about 19.9% of the total. Among them, 1 person volunteered to participate in learning and training, accounting for about 6.7% of the total number, and 14 people generally arrange learning and training by the school, accounting for about 93.3% of the total number.

6. Conclusion

The effective integration of big data technology into music classrooms in primary and secondary schools can improve the classroom efficiency of music teaching with rich and diverse teaching resources and flexible teaching forms. This paper focuses on expounding the data access music education module in the big data service management system to realize the platform data access mechanism and caching mechanism, the visualization module to realize the visualization function of the music education platform, the log service to realize the logging mechanism, and the web two-layer verification function. The main purpose of this paper is to combine the background of the rapid development of information society science and technology, to explore the feasibility of the application of new music teaching technology in the era of big data, and to inspire and lead music teachers to apply new media spontaneously and consciously and to fully apply the information society. The new achievements of science and technology serve the future of music classroom teaching. Data processing is the process of creating ETL jobs through visual configuration. The process mainly includes five parts, job editing, data sampling, verification, trial operation, and scheduling, and combined with the big data analysis system, the accuracy of the analysis results can be easily verified by simulation. Through the test of each functional module, it is verified that the function of the platform is available, and the performance test of the platform including the platform's real-time data processing, offline data processing, and data access module is carried out. Data processing is the process of creating ETL jobs through visual configuration. The process mainly includes five parts, which reflect the richness of functions, the stability, and security of the platform, and the advanced technology of the music education platform proposed in this paper.

Several people would not work in a music class; hence, this study is constrained by a small sample size. To begin with, instructors had to choose a strategy that was consistent with university requirements, which naturally limited the range of musical abilities that could be taught. This hampered attempts to evaluate online education as a viable substitute for conventional classroom instruction. The administrative structure only permitted us to employ technology to help students retain and improve upon previously acquired knowledge and skills in the music classroom. Lastly, more study is required on music-specific special education training of music teachers. Even replicating earlier research could be useful to determine where we stand right now. The field might advance toward a better comprehension and application of inclusion techniques in music education with the aid of additional studies of this kind.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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