



Design and Implementation of Distance Music Education Platform Based on Public Cloud

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Abstract. Internet and big data have gradually penetrated into various fields, having a great impact on China's music education, and its development has caused the reform and innovation of music education. Today, with the universal realization of campus informatization, the diversified trend of thought has formed a strong impact on the thoughts of college students, so it is more necessary to strengthen the aesthetic education of college students, so as to promote the formation of their healthy personality. Big data has been integrated with education, giving full play to the role of big data teaching resources in music classroom, carrying out music aesthetic education teaching, integrating music aesthetic education resources, and promoting the formation of college students' ideal personality. This paper makes some analysis of the current situation of distance music education in colleges and universities, puts forward some views and views on the music education in the era of big data from the perspective of music aesthetic education teaching in colleges and universities, and provides some perfect ideas for today's music education.

Keywords: Big Data · Music Education

1 Introduction

As a technological revolution, big data uses massive data information and excavates data resources. It is characterized by the large amount and various kinds of data, but due to the large number, the problem of low data value should also be solved. Under the background of big data, students have diversified and multi-level needs for aesthetic education teaching [9]. Therefore, in the music classroom, innovative teaching management, combined with the information teaching platform, should be given full play to the advantages of big data mining music aesthetic education resources, so as to create an open teaching space for aesthetic education for students [1]. With the help of the talents trained by the network, the music classroom is extended to the network to realize the open management of the music classroom, so as to adapt to the new requirements of students for music aesthetic education teaching in the era of big data.

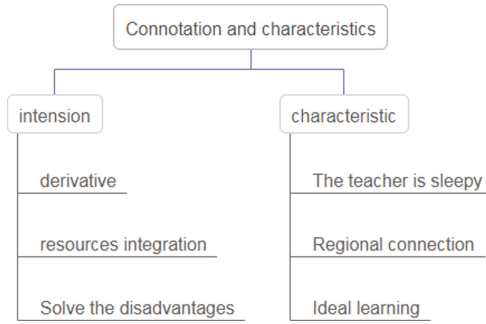


Fig. 1. Connotation and characteristics of music education under big data

2 Connotation and Characteristics of Music Education Under Big Data

2.1 Intension

Big data under the music education is mainly based on the information Internet technology derived a new type of education mode, mainly focus on the subject status of music learning and consciousness, advocate personalized music teaching, break the disadvantages of traditional music teaching, innovation of music education, make music education to the direction of more personalized and open [12].

The music education platform under the big data needs to be applied to the new music education equipment to transform the way of music education and teaching from the original imagination to the visual presentation. When teaching, teachers can use MIDI to make music, which has a good role and help in solving some bottlenecks in music teaching. In addition to the big data of music curriculum mode is also in continuous innovation, through the big data, the Internet and music education, the integration and management of resources for effectively, teachers can deploy according to their own time, students can also according to their own time and interest to independent learning, improve the autonomy in music [8]. Specifically including the following: teachers can make the classroom education content into short videos, take it as a formal teaching content, and with teaching design, forum, courseware, contact and other modules, music classroom teaching. In addition, rich music intelligent education resources can be developed, rich music digital textbooks embedded into music, the corresponding music teaching content made into teaching materials, and record videos, so as to stimulate and mobilize the enthusiasm of students to learn music [3]. Big data under the music education can adopt the form of flipped classroom, teachers will make good video uploaded to the class group, students can make certain preview before class, and record oneself feel don't understand place, teachers can make certain answer in class, so as to improve students' independent learning ability for music, help students to deepen the understanding of music knowledge (Fig. 1).

2.2 Feature

The characteristics of music education in the background of big data and Internet are mainly reflected in the following points:

Due to the lack of teachers in music education, it is necessary to share educational resources through the connection of big data and the Internet. Under the premise of the application of big data, music can be connected through regions to provide students with online music education, so that students can obtain the teaching results of excellent teachers through the network, so as to strengthen the interaction of music teaching. With the support of artificial intelligence and VR technology, it can greatly enhance the authenticity and visualization of music education. Based on the method of cloud technology, to build an independent music learning platform with “cloud + network + end”, which can use big data to obtain relevant data about music learners, so that music learners can realize real free learning and idealized learning.

3 Construction of Distance Music Education Platform Based on Public Cloud

The first is the description of music course, which needs to use the resource description framework. RDF is a common language to describe Web information in the semantic Web architecture framework [4]. It draws on the knowledge representation method of semantic network and uses subject-predicate and object triples to briefly describe Web information. As a standard of resource description, RDF can flexibly deal with retail bureaus with a certain basis, and can also solve the problem of resource consistency description. Take the following course as an example, the main manifestations of the RDF document summary are as shown in Fig. 2.

The only and certain one in the document indicates a network resource, and the abstract also indicates the topic, address, subject, introduction, uploader and upload time of the music course, which all belong to the elements of RDF.

The provision and learning of music courses need a unified way to describe and find the services provided. Therefore, it is necessary to establish a service registration

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<?xml version="1.0" encoding="utf-8"?>< rdf: RDF
xmlns:rdf=" http://www.w3.org/1999/02/22- rdf- syntax- ns#"
xmlns:trackback=" http://madskills.com/public/xml/rss/mo ule/trackback/"
xmlns:de="http://purl.org/de/elements/1.1/">
  < rdf: Description
rdf:about = http://192.168.0.1/ipts/wtay-shi/m
sic.html
  de:title="Explore sound and music"
  de:identifier=" http://10.1.0.240/ITresources/20
description.html"
  de:subject=" Exploration of sound and music"
  de:description="Ability to use voice, instrument or other sound materials
to represent certain situations; ability to evaluate oneself or others's voice exploration
activities."
  de:creator=" xacom"
  de:date="2012-10-11T12:00:00+08:00">

</rdf:RDF>
```

Fig. 2. Summary of the RDF document.

center based on public cloud, adopt agent mechanism to manage music courses, and use a series of registration services provided by UDDI protocol to provide specifications for course classification, course identification and course interface. The platform meets the needs of learners through music course retrieval. Music course retrieval is the process in which service requesters match the music courses from the course list through the query service registry [6]. The implementation of music course retrieval can only be completed by finding and binding music courses in the UDDI registry.

In this way, students can understand and understand relevant music scores and resources through independent Internet search, learn certain online courses in Internet resources, and understand and master the basic structure, background, author's emotions of the music [5]. Through the way of social collaboration and division of labor, the characteristics of the interactive sharing advantages of the Internet are used to help students to carry out repeated systematic exercises. Through the discussion and communication with learning peers, students can deepen the understanding and cognition of the correct playing movements. Students can also choose diversified music appreciation resources according to their own interests to experience the emotional color and atmosphere of different music works [7].

4 Practice Analysis of Music Education Innovation Under Big Data

4.1 Establish the Teaching Concept Under Big Data

In the process of connecting big data and music education, Internet resources can provide rich Internet music teaching resources for music education. Teachers can transmit teaching content into teaching courseware through personal microblog and wechat, and use their website links to facilitate students to learn [10]. In music education and teaching under big data, teachers should change the original role positioning, teachers should change from traditional and single teaching role to learners, build music teaching space online, explain the key and difficult points in music teaching, and break through the bottleneck of learning [11].

4.2 Application and Innovation of Artificial Intelligence in Music Education

Artificial intelligence as a high-tech embedded in the field of music teaching, has made great contributions to the music teaching field, also provides great convenience, such as electronic synthesizer reflects the efficient, humanized and intelligent characteristics, can use programming, algorithm, and acoustic music creation, so as to meet the needs of learners [2]. It can be seen that intelligent electronic instruments can be better applied in music education, and students can play their own songs in class (Fig. 3).

4.3 Build an Online and Offline Music Experience Platform

In the process of innovation and development of music education and big data, big data technology and methods should be used. Dig deeply and analyze the relevant data of students 'daily piano learning, so that teachers can fully grasp and understand students'



Fig. 3. Practice analysis of music education innovation under Big Data

music learning time, habits and preferences, and realize the customized and personalized teaching of piano music. At the same time, construct online and offline music teaching scenario experience platform based on the Internet and big data, design dynamic online teaching, and carry out music gamification teaching based on the premise of equal dialogue between teachers and students, such as making piano classroom knowledge online interactive games: piano music reading group challenge and so on. We can make full use of students' fragmented learning time, with the help of iPad music class, mobile phone client, official microblog, wechat public account and other new media platforms, create a fragmented piano music teaching space, regularly push piano music knowledge and services for students, and promote the integration and innovation of music education resources.

5 Conclusion

This paper establishes a remote music education platform based on public cloud, and puts forward the platform architecture and some suggestions. The public cloud deployment

method adopted by the platform realizes the mutual independence between music course release and course request, handles the growing course resources, and the flexible course sharing method meets the needs of learners' distributed learning realized through course retrieval. With the wide application of cloud computing platform, the music education platform has also been further improved and changed.

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