



Application of Multimedia Computer-Aided Instruction in Music Teaching in Universities

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Abstract. The current teaching methods and the progress of education mode, to a large extent by computers and network technology push While the development of network multimedia technology, promote the development of the education theory and education system Along with the country to the attention of the digital campus construction, everyday teaching activities and teaching methods and teaching means increasingly update, in the field of education plays an extremely important role. In the course of daily music teaching, how to use multimedia technology to realize the visualization of music teaching; How to improve teaching quality and teaching efficiency; How to optimize and integrate the existing teaching resources, strengthen the management of daily business and teaching resources; How to establish effective teaching mode is the problem to be solved in the process of music teaching.

Keywords: Design and implementation; multimedia computer; music teaching; universities teaching system

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1 INTRODUCTION

Over the years, many primary and secondary school teachers in the teaching mode and teaching method reform and innovation of fresh progress, its main influencing factors are: education pattern of traditional education mode of thinking, etc for many years, this disadvantage in cultivating students' practice ability and innovation ability, but also conducive to the advancement of quality education, education has the extremely important influence to our country. Many teaching modes and teaching methods cannot be effectively extended due to teaching conditions or management difficulties and other reasons, intelligent in the evaluation class or demonstration

class to make advanced teaching methods into the classroom is best to use advanced auxiliary teaching software, improve the teachers' work efficiency and students' learning efficiency.

Through the literature investigation and study found that in the middle school music course teaching, the old teaching methods teaching form has apparently difficult to adapt to the knowledge dissemination and the study situation of the current information society, it is difficult to achieve the expected teaching effect and teaching division for music teaching in the subject teaching environment courses meet process comprehensive music education curriculum design and research, etc. And many aspects of teaching design and teaching implementation process are facing many constraints. Of course, it also involves many problems, such as how to retain the advantages of traditional curriculum organization form, and give play to the effectiveness of information technology; How to successfully complete the integration of information technology and art education and expand the flexibility, vividness and culture of the curriculum; How to set up a correct way, complete the teachers teach and students learn good interaction and so on This needs for high school music appreciation course teaching goal request features of teaching content, and learners' needs and learning, through information technology to create music learning situations, solve three teaching concept teaching means teaching method This paper takes the teaching of middle school music appreciation curriculum as an example, and makes some preliminary explorations on the effect of music appreciation teaching and information technology.

In theoretical sense, computer music technology in junior high school music class in terms of theoretical research is still in a stage of development, in the actual teaching process needs more to try and think of this article studies using the experience of the predecessors' research and teaching, trying to at the theoretical level to further improve the teaching concept, to computer music technology in early In the music provide certain theory reference in practical teaching On the practical teaching, this paper studies the core of computer music technology practical teaching is productive, music teaching present situation investigation and analysis in the early, on the basis of analysis for the problem, in the introduction of computer music software to music class is resolved Through computer music technology to bring a new way of music teaching, bring students new music course experience and more efficient music aesthetic experience, so as to bring new ideas and expand the space for music teachers to teach.

2 RELATED STUDIES

Mawusi et al. 's [1] research on the application of computer music technology in music creation is mainly divided into three parts. The first part introduces computer music technology and important concepts related to music creation. The second part is a detailed description of the specific application of computer music in the creation of music, and the modern music works video music works electronic music works as a case for specific analysis; In the third part, the author prospected the development direction of music creation in the future. Through the comparison between traditional music production and computer music production, Ya et al.[2] analyzed the characteristics and limitations of traditional music production as well as the advantages of computer music production compared with traditional music production, and emphasized in the last part of the article Computer music production and traditional music production organic combination to play their own characteristics and strengths to create more high-quality music. Tian Blankertz et al. [3] put forward in their article on the development of multicultural music education in China that multiculturalism, as a new academic concept, is sweeping every corner in the field of education in the world today. At the same time, Khaydarova et al. [4] put forward a clear view on the strategy of information technology and curriculum integration. He believed that multimedia could be used to improve aesthetic quality and highlight the aesthetic education function of music teaching. For all students, highlight the educational function of music teaching. Frolova's [5] development and innovation of music education demonstrates the transformation of music teaching mode and the specific strategies of information technology application in music teaching from the perspective of the current development and innovation of music education.

From the analysis of the existing research results, we can see, although there is a lot of related research, are involved in the application of information technology in music appreciation teaching strategy, and puts forward the relevant ideas [6]. But these are only for music teaching research outline, the lack of in-depth and detailed discussion. And music appreciation class lessons for junior high school level It should be said that this topic is still in its infancy in the field of current theoretical research [7]. Among a large number of academic research results, also did not see the subject of special research, even the general academic research results, for the middle school music teaching strategy research is also limited in the pattern research curriculum reform prevue on the theory of innovation education, etc is based on the above situation, it is necessary for us through the way of course sample experiment, specific reflect [8]. The interaction and integration between middle school music appreciation teaching and modern educational technology, induce and design the specific strategy of information technology applied to middle school music appreciation teaching [9]. Teaching must be student-centered, give full play to students' subjective initiative, make students place themselves in the situation of learners' researcher and supervisor, and especially point out that we should use modern teaching resources, make full use of modern music teaching equipment technology and hands section, constantly improve teachers' multimedia production ability and teaching ability, compile suitable for professional characteristics, easy for students to learn audio-visual materials computer aided software, the use of modern audio technology computer technology and other modern teaching resources, In his research, he also discusses the significance of information technology in promoting music teaching with a considerable proportion [10].

2.1 Architecture Design

The design of music teaching auxiliary management system adopts three-layer architecture, as shown in Figure 1.

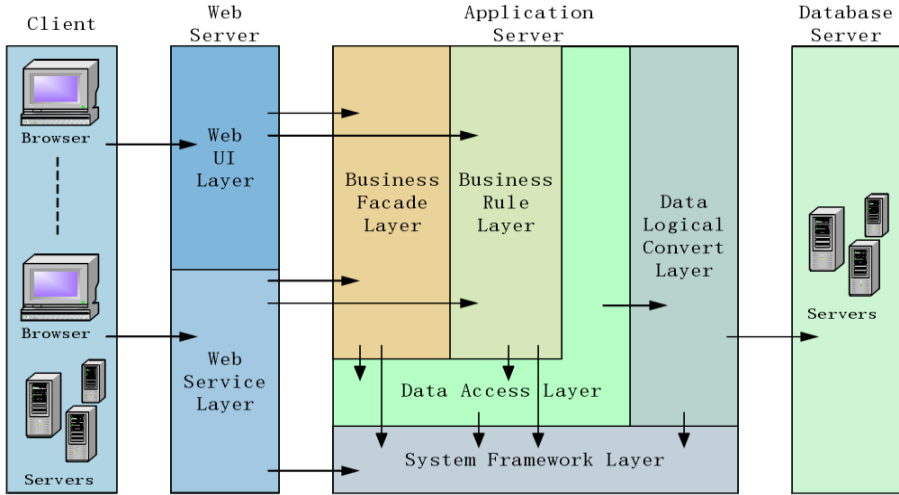


Figure 1: Multimedia computer aided teaching system in music teaching.

In Figure 1, the system architecture is mainly divided into Web Server Layer (display Layer), Application Server Layer (control Layer) and Database Server(data access Layer). The display Layer is mainly composed of Web UI Layer and Web Service Layer, using JSP and other technologies to achieve interaction with the client; The control layer is mainly completed by using Spring and other core frameworks to realize the business logic processing of the auxiliary teaching system. The business request sent by the client is processed by calling the data access layer, and

the results are displayed to the client in a specific form of user interaction, so that users can view and browse. The data access layer mainly realizes the interaction between the business logic layer and the database to prevent service requests from accessing the database directly, resulting in data inconsistency and ensuring data security and integrity.

The overall design of the system including the function structure design and architecture design, how to simplify the general modular design in the modular design, not only to divide the composition of the system implementation artifacts, but also to the continuity between the communication module of the module to carry on the design of protective module solvability and module combination. In order to improve the principle of continuity, it is necessary to maintain the black-box feature between modules and make other modules transparent. In order to improve the protection of modules, it is necessary to protect the variables inside modules to prevent the wrong use of other modules. At the same time, special consideration should be given to module exception processing.

2.2 Key Technologies of Multimedia Computer

Modular design of the system, it is necessary to meet the loose coupling between modules, and the module highly cohesive characteristics of internal module must be able to independently complete the function of the design, but it is necessary to control the size of the module. Module can be summarized as the properties of interchangeability, Pluggable line and boundedness, mainly includes three aspects: (1) When the internal requirements of the module change, the changes do not affect the normal operation of other modules; (2) When the module needs to be deleted, only the functions handled by the module will be affected; (3) If a new module realizes the same function and has the same operation interface, the operation of the whole system will not be affected after replacement.

Music auxiliary teaching management system is mainly composed of information release, document management, teaching resource management, auxiliary teaching and learning management and system management modules, among which the information release module is divided into school news notice, public school news and BBS, etc. Document management is divided into dispatch management, receiving management and archiving management; Teaching resource management includes courseware management, homework management and music knowledge management, etc. Auxiliary teaching management is divided into course management, online examination Q&A discussion and result analysis, etc. The system management is divided into teacher and student management, setting management, log management and decision-making management. The functional structure of the music assisted teaching management system is shown in Figure 2.

In addition, in music appreciation course is an important content in the enjoyment of the various kinds of Musical Instruments, learn to recognize not tone with the Musical Instruments is an important content of teaching. But the actual classroom teaching requirements of music of all kinds, involved in the school if all the purchase cost, some schools in order to control the equipment cost. As a result, the equipped instruments are prone to some quality problems, and some instruments that have been used for a long time will also suffer some deviation in intonation and tone color. If students listen to such instruments for a long time, they will easily have deviation in the perception of notes, which will affect their learning and appreciation of music in the future.

Specific operation just put corresponding instruments in audio source software installed on the host, in the next track loading need to use the instrument audio interface, and in the MIDI input interface input corresponding notes, can be used for simulating instrument playing, to teach the teacher also can be used according to the specific teaching content flexible instrument audio source make teaching become more efficient and fun.

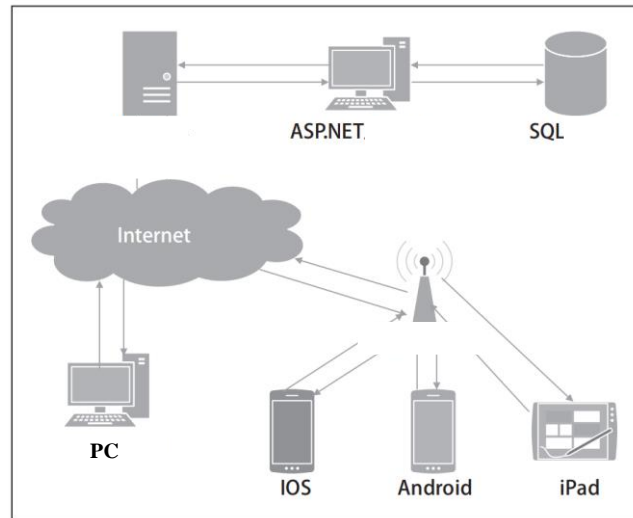


Figure 2: Key technology architecture network diagram.

3 ANALYSIS OF RESULTS

3.1 Multimedia Computer-Aided Teaching System Performance

For those who just want to use computer music technology to assist music teaching, the computer software and hardware system that needs to be equipped does not need to be as professional and comprehensive as a professional music studio, but only need to be equipped with a set of simple computer sound and music system suitable for teaching. Hardware preparation: computer sound card MIDI keyboard microphone monitor earphones, software preparation: Cubase host software instrument audio source plug-in and mixer plug-in hardware, consumer expenditure can be controlled in about six or seven thousand yuan if the economic conditions are limited MIDI keyboard can be used with MIDI Interfacing with a vibraphone or electric piano instead, which is shown in Figure 3.

In terms of software, Cubase host software is divided into professional version and element version. In terms of budget and cost, if economic conditions allow, cubase professional version can be directly purchased. If conditions do not allow, Cubase can be used Element version, element version of the software can be obtained through network resources, and there is little difference between the two functions, can be fully competent for the task of music teaching instrument audio source plug-ins and mixing effects can also be obtained through network resources. This system software development goal is to realize the online teaching music appreciation Make full use of multimedia technology and modern network teaching, the combination of music and frame synchronization, and according to the music of artistic conception and the specific content of music knowledge, creating good music scene, makes the student to resonate with specific artistic image, by the music In this way, not only students' understanding of music is more profound, but also students' interest in music learning is improved.

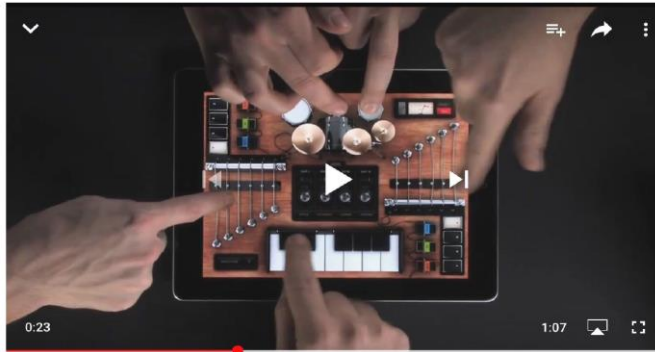


Figure 3: Sound sampler interface.

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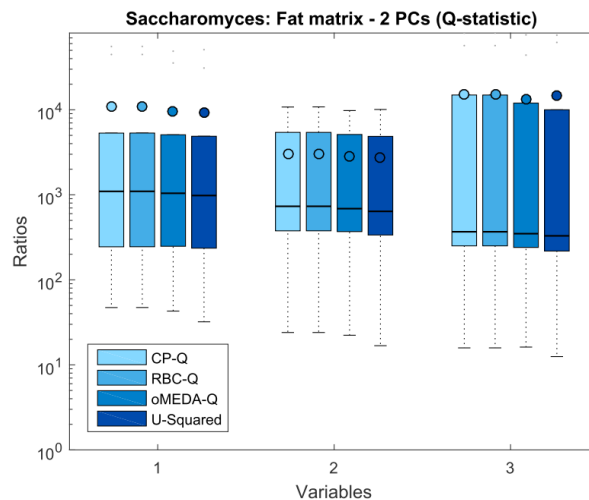


Figure 4: CAD-aided teaching system performance results.

From the analysis of the existing relevant research results, we can see that although a large number of relevant researches are involved in the application strategy of information technology in

music appreciation teaching, and put forward relevant assumptions. However, these are only general explanations of music teaching research, and lack of in-depth and specific discussion. Moreover, there are almost no people involved in the teaching of music appreciation courses at the junior middle school level. It should be said that this topic is still in its infancy in the current theoretical research field.

In a large number of academic research results, there is no special research results on this topic, even if the results of general academic research, the research on the strategy of middle school music teaching is only limited to the theoretical overview of pattern research, curriculum reform, innovation education and other aspects. Is based on the above situation, it is necessary for us through the way of course sample experiment, the concrete reflection of the high school music appreciation teaching and the interaction and integration between modern education technology, inductive design information technology applied in the junior middle school music appreciation teaching specific strategy to cultivate students interest in music, expanding horizons, enhance feelings, understanding and appreciation ability and creativity, and abundance. Enrich students' emotion, edify good sentiment, improve students' aesthetic level, promote the improvement of students' personal accomplishment.

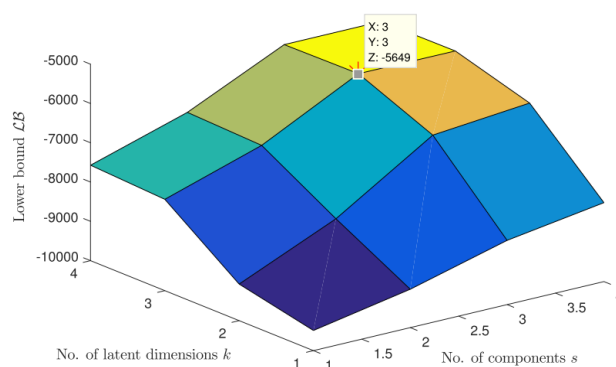


Figure 5: Digital picture book interaction design.

In teaching video on demand system of the main page as shown in figure 5, in the picture we can see that students' attitude towards music appreciation class, more than 60% of students like music appreciation class. Because the music appreciation course easy, but at the same time of course satisfaction degree is not high, reflect the most reason is that old teacher coping strategy, single course content, teaching equipment is not good enough. Visible most of the students in music appreciation course favorably and satisfactory manner, but most support reasons but because other academic subjects are too nervous, can in music Enjoy relaxation in the class, did not reflect the music appreciation course itself. Some students are not satisfied and don't like the attitude, why focus on the teachers' teaching attitude and teaching methods. Of course, there are some students have fudged, hold an indifferent attitude, this kind of student usually has good grades, only pay attention to their academic study I don't pay much attention to the music appreciation class.

In the music appreciation class, only 40% of the students are willing to communicate their feelings with teachers and other students, and have the courage to express their opinions. However, in the selection of a favorite music appreciation class, the reasons for students' different choices are mainly focused on the following aspects: some students chose the class in which movie clips were played, some students chose the class in which the teacher made a slide show, and some students chose the class in which games were designed. It can be seen that

students prefer diversified teaching methods and participation of various teaching methods, but reject a single boring teaching process. 60% of the students do not know how information technology is applied to music appreciation teaching, which on the one hand reflects the present stage of music appreciation teaching for the application of information technology is not enough attention, on the other hand also reflects the students for information technology understanding is not much. However, in the suggestions made by students to music appreciation class, the proportion of the suggested amount is in order, respectively, they hope teachers to play more different types of music; I hope it will be lively and interesting, not boring; I hope I will not spend all my time on the introduction of music knowledge; Hoping to add some music not found in books; Hope to see the image data; I hope there will be more pop music. Hopefully some other activities; Hope to mobilize everyone's enthusiasm, which includes the need for the application of information technology.

3.2 Analysis Results of Teaching System

In teaching, the teacher still stays in the implant itself to music feeling and understanding stage, the teacher put what, listen to what students, teaching methods, give priority to with teachers imparting knowledge more, while ignoring the students subjectivity, guide the development of the cause of the comprehensive ability of the students is not fully, students have no choice initiative, nature also cannot be activated. A keen interest in this kind of situation has greatly reduced the students' initiative and participation, make students feel boring and tired, passive accept music, also hard to participate in the interactive teaching, music appreciation and aesthetic can force can not be true, let alone trains the student to feel the power to appreciate beauty and create beauty.

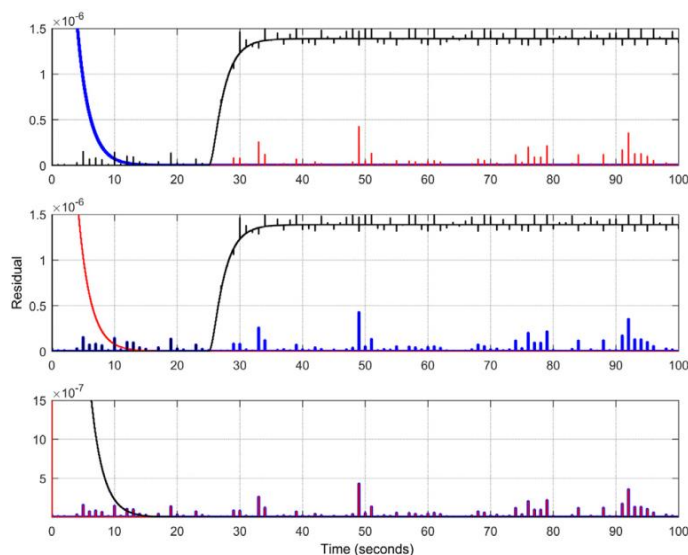


Figure 6: Student test analysis of the interactive visual communication teaching system.

A single type of appreciation teaching is still present commonly used method of music appreciation teaching, teachers in the music appreciation teaching hours and still stay in simple introduce myself playing or singing in the background. Ask questions require students to answer such a stage, and students in the usual music accept have already begun to take advantage of the various kinds of advanced equipment, have received various Fresh information, the information provided in accordance with the teaching reference books to introduce students to work the obsolete teaching method cannot arouse the aesthetic interest of the students. Instead of aesthetic imagination and

emotional resonance, let the students feel dull and tasteless, the needs of the students participation in the main moving experience to create music cannot satisfy the traditional music teaching not only equipment resources Single effect, even teachers in the singing, playing, speaking and performing many aspects of the process is often inadequate, cannot cover all aspects, the direct result is to make students in the appreciation of music appears very passive, attention is easy to distract, cannot achieve a good classroom effect. A single type of appreciation teaching is still present commonly used method of music appreciation teaching, teachers in the music appreciation teaching hours and still stay in simple introduce myself playing or singing in the background Ask questions require students to answer such a stage, and students in the usual music accept have already begun to take advantage of the various kinds of advanced equipment, have received various Fresh information, the information provided in accordance with the teaching reference books to introduce students to work the obsolete teaching method cannot arouse the aesthetic interest of the students Instead of aesthetic imagination and emotional resonance, let the students feel dull and tasteless, the needs of the students participation in the main moving experience to create music cannot satisfy the traditional music teaching not only equipment resources Single effect, even teachers in the singing, playing, speaking and performing many aspects of the process is often inadequate, cannot cover all aspects, the direct result is to make students in the appreciation of music appears very passive, attention is easy to distract, cannot achieve a good classroom effect (Shown in Figure 6).

Figure 7: Visual communication teaching results.

To further explore and enrich the proposed method, system performance is the lifeline of software survival, performance will have a decisive impact on the future development prospects of the software, scalability and compatibility in software development, we should not only meet the functional requirements of customers, but also look at problems from the perspective of development, judge and estimate some new functions that the system may need. To meet the needs of the user's potential Because the music appreciation teaching system function is a perfect gradually mature process, the user can according to the actual use condition, the system of the business needs to ask for more, the complexity of the system and integration are stronger and stronger, so we must be considered when design system extensibility, maintainability of the system that Security etc., the results are shown in Figure 7.

In terms of impromptu accompaniment, the use of music software Cubase for piano impromptu accompaniment is not skilled enough teachers can directly use MIDI notes in software Cubase to input the piano accompaniment of songs learned into the software, which not only greatly shorten the time of lesson preparation for teachers, but also ensure the accompaniment notes Rhythm of accurate, in the actual teaching can also according to the situation of each student's specific singing flexible transformation of different mode and speed, to ensure the range when the singing. And how fast can adapt to each student to transfer the initial number of the interface is 0, the double-click part Numbers and lost into the corresponding number can transform different mode If you add a positive value, you raise it by half a note. For example, if you enter the number 1, the selected piece of music will be raised by one half note. For example, if you input the number -1, the piece of music will be processed by a half tone. By analogy, the speed value displayed on the speed adjustment interface is the same as the music speed value commonly used by the public. You only need to input the corresponding number.

4 CONCLUSION

In the process of music teaching, through teachers' experience and summary can be found that the students in learning the problem to a certain extent, has its generality Students can in real time by means of consulting, consulting, and problems for the other students understand and grasp, reduce unnecessary detours. Common problems can be solved by querying historical records; At the same time, teachers can summarize and summarize the originality, typicality and universality of questions from the historical question and answer records, and then summarize them into the question database for unified treatment, which is convenient for the later query to analyze and analyze the question database irregularly.

This paper mainly auxiliary teaching system design and development of a careful and detailed research and elaboration First of all, this paper from the background and feasibility analysis of interactive multimedia network teaching development significance and purpose of the system and the feasibility of the development are analyzed and the requirements analysis phase, system needs analysis and related books make up the list all the requirements of users to design system, will have to develop teaching assistant system model is established and how the function design and implementation, convenient the system development to make our software design team for the whole software to complete the function of know very clear, accomplish know fairly well in the development of design, is good for software development and development progress control and quality control.

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