Research on the Reform of Music Education Mode in Colleges and Universities Based on Computer Music Technology

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Abstract. With the continuous development of computer technology in the world today, this technology has been used in many fields, including music education. At present, music education in China still uses the traditional way of education. The teaching effect of the new computer music technology is undoubtedly much better than the traditional teaching method. This study discusses the development status and advantages of computer music technology and its specific application in music education.

Keywords: Music Education, Computer Music Technology

1. A brief introduction to computer music technology

Computer music refers to the process of using multimedia technology to comprehensively deal with all kinds of music elements and music materials and edit or create into physical music content. Computer music was born in the second half of the 20th century, until the 21st century, it has developed by leaps and bounds as a major invention in the field of art. It permeates all aspects of music creation, film and television soundtrack, Internet and mass entertainment. Computer music technology is becoming more and more perfect and mature in the function of hardware configuration, the development and utilization of software and the transmission of network.

All the music coming from the loudspeaker, whether classical music or modern music, cannot lack computer technology. The pros of modern computer technology lie in its high-level digital data processing ability. Digital sound processing technology greatly improves the fidelity of sound effects and enriches the expressive force of music. Whether it is the sound quality of music, or the construction ability of music, computer music technology shows an unprecedented great leap.

Computer music production is a type of music production which takes the computer as the control core, and electronic instruments as audio terminals. It has its own unique musical style, musical language and aesthetic characteristics, and has formed its own unique professional system in melody, musical form, harmony, orchestration and performance. It involves acoustics, sound recording, musicology and computer digitization and other technologies, is a new type of high-tech application discipline in the field of musicology[1].

The process of creating and making traditional music is very long and complicated. The computer music mode has completely changed this complicated process of creation and production, and liberated the composer from the manual music production mode. The inspiration of the composer can
be easily realized directly through the computer music system without the participation of the performer and conductor. Standard music scores and dynamic synthetic sound effects of various timbre allow composers to get their own creative results easily and quickly[2].

2. Comparison between traditional music education mode and computer music technology

2.1. The defects of traditional music education model

2.1.1. Research ability
There are few courses and research on computer music in China, which leads to less understanding of computer music technology for both teachers and students. Moreover, China lacks research centers in the field of computer music. This makes the structure of the music profession cannot be improved, and cannot form a benign development model in the field of music as well.

2.1.2. Lack of software and hardware
Due to the limitation of teacher structure, only a few schools in China can train students in the field of computer music. Most of the computer music teachers have a professional background in music, and they are not very familiar with computer technology. However, the teacher structure of the combination of computer and music have a major position in the process of improving the level of computer music education.

In addition, China's investment in the hardware of education is seriously insufficient. This is because the cost of computer music education is relatively high, and this field has not received enough attention.

2.1.3. The traditional concept of education is relatively conservative
With the emergence and popularization of computer music courses, many schools do not have a clear judgment on its development prospects. To a large extent, the lack of concept and understanding directly hinders the development of computer music. In China, most universities cannot get rid of the shackles of the traditional music teaching mode.

In addition, there is a lack of necessary links between various disciplines, which greatly affects the innovation and development of computer music technology. Therefore, one of the factors affecting the development of computer music technology in the area of teaching is whether schools can accept a new concept of music education.

2.1.4. Lack of communication
The mutual communication and communication between disciplines is the guarantee to achieve common development. Computer music technology makes it an interdisciplinary discipline that
requires such an interdisciplinary academic institution. In China, due to the lack of communication, the ideal of music discipline is relatively scattered, which hampers the rapid development of computer music discipline.

2.2. The advantages of computer music technology
The popularization and popularization of computer music technology will help to enhance the teaching quality of music teaching in the universities. The traditional music teaching mode is reformed through computer music technology. It has three main advantages.

2.2.1. Improving the objective resources of college music teaching
Recently, the enrollment number of music subjects in our country has greatly increased, which makes the objective teaching resources in schools fall short of supply. Therefore, universities accept the way of increasing teaching resources to carry out music teaching, so as to improve the use of funds and reduce the proportion of school teaching income[3].

The application of this technology to the reform of music courses in the universities can more comprehensively avoid the repeated construction and investment of objective education resources. It also increases the utilization rate of objective resources of music education and teaching in the universities. For example, we can share or continue to use duplicated teaching materials of computer technology in the teaching of the same subjects, so as to reduce the investment of teaching funds.

2.2.2. Increase the usage of subjective resources in college music teaching
The traditional mode of music courses in the universities adopts a "one-to-one" teaching method. Under the latest situation of music education in the universities, this teaching method cannot fit the requirements of music teaching in the universities. The extensive promotion and widespread utilization of computer music technology are able to resolve the problem. It can better reduce the occurrence of repeated lesson preparation and repeated teaching of music teachers, save the subjective resources of teaching, reduce the work intensity of music teachers, and reduce the workload[4].

2.2.3. Developing and perfecting the existing educational model
When there are shortcomings and results in the traditional music course methods in the universities, we need bring the pros of computer music technology into full play. This can combine the traditional music teaching mode with computer music technology and complement each other's advantages. It not only helps to improve the teaching efficiency of music courses in the universities, but also helps to increase the quality of students.

3. The concrete application of computer music technology in the area of music course

3.1. Training of basic musical skills
The most important and basic training item in the training of basic music skills is the training of music hearing. The traditional teaching adopts the classroom teaching mode. In this learning process, teachers cannot take into account the individual differences of students and implement targeted training. The evaluation of learning performance, especially sight-singing, mainly depends on teachers' subjective hearing. For solfeggio training programs, computer hardware is an unparalleled superior teaching tool.

In the training of music hearing in a computer-aided teaching environment with local area network, the computer can exchange audio information with video information instantly and accurately, so as to realize the dual sensory stimulation of the combination of hearing and vision for learners. The teaching software for auditory training generally adopts the mode of program teaching, and the auditory training process is carried out in the form of man-machine dialogue. First of all, the learners choose targeted training items. Then it presents the learning content in a multimedia way and explains the relevant knowledge and skills. After the end of the unit learning, it can immediately enter the
human evaluation stage. The whole teaching process of solfeggio can be completely without the intervention of teachers, and the learning time and training items can be mastered by the learners themselves, so as to truly realize the individualization of education.

3.2. **The study of music theory**

Basically can be divided into three categories:

3.2.1. **Computer-aided music teaching is applied to basic music theory and harmony, orchestration and composition**

There are two major learning patterns: 1) The educating methods with computer music system as teaching tool under the guidance of teachers; 2) It is completely based on the automatic teaching mode of computer programming teaching.

The two learning patterns can be used in lots of ways. The fully automatic teaching mode of computer programming teaching has been adopted. At present, multimedia teaching software such as basic music theory, harmony acoustics and orchestration has been published. These softwares are incomparable to the traditional classroom teaching in terms of the autonomy of learning substance, the flexibility of learning mode and time, and so on.

3.2.2. **Use computer memory as a carrier for music appreciation and work analysis**

Using computer as audio and video carrier in the teaching of appreciation, using computer multimedia digital technology, abounding data storage technology, the computer has ability to play digital audio in any format. Due to the pros of computer multimedia, it can also be followed by video information in the process of music playback, including text, pictures and so on. All the functions of the computer make it a super multimedia player, which undoubtedly fundamentally improves the teaching efficiency of courses such as music appreciation and work analysis[^5].

3.2.3. **Carry on the study of comprehensive music subjects such as music history, introduction to art and so on**

Each part of teaching content is added into courseware by using multimedia authoring tools. Its essence is that the old teaching unit is came up with in the way of multimedia, and the information presentation process of both picture and text and sound and image has great advantages over the traditional teaching information transmission process. The link structure of knowledge points has expanded from the linear link structure of old educating method to the network link. It is more similar to the information link structure of the human brain. That is more helpful to the meaning construction of learners[^6].

4. **Conclusion**

With the development of computer system, a global professional music education network may be formed in the future, forming a music education system at all levels. This enables all people who love
music to complete music education courses systematically and professionally. The teaching method of computer music system reflects the influence of scientific and technological progress on the way of education, and it is also essential to implement quality education and cultivate talents with all-round development. Computer music technology is worth popularizing in music teaching, which makes modern music education step into a brand-new modern era.

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