

# Application of digital technology in the teaching of basic music theory

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**Abstract:** In the process of music theory teaching, we can use multimedia technology to make music courseware, display the teaching content through modern teaching equipment, create an easy teaching environment for students, and restore the teaching material knowledge through the form of text, video, image and audio. This paper focuses on the application of digital technology in music theory teaching.

## 1. Introduction

In today's society, computer has become an essential part of people's life and work. As a music education builder, we should keep pace with the times, keep up with the trend of the times, organically combine digital technology with music teaching, give full play to the advantages of multimedia technology, innovate teaching mode and enrich teaching means. Because multimedia teaching is convenient and diversified, it can be applied to music theory teaching in the actual operation process to enrich teaching content, improve teaching quality and classroom effect. How to skillfully apply digital technology to music theory and solfeggio teaching? Next, this paper makes a concrete analysis.

## 2. The connotation of Digital Teaching

With the continuous development of computing hardware technology, digital multimedia came into being, and with the passage of time tends to mature. Specifically, digital multimedia is a kind of media and means that integrates many kinds of ways to convey information, such as image, text, audio, video, etc., and reprocesses information carriers including image, text, audio, video, etc. on the computer platform. In music teaching, students generally show strong interest and concern for mid music, sound, picture, animation, dynamic video and other multimedia information. Through the form of digital multimedia teaching, not only conforms to the development situation, but also improves the comprehensive quality of students imperceptibly<sup>[1]</sup>.

## 3. Application advantages of digital technology

### 3.1. Interactivity

Multimedia itself is fast, convenient and sensitive. In the face of students' problem feedback, its processing speed is far faster than the brain's response speed, so that students can receive feedback information in time. In this process, it can effectively stimulate the subjective initiative of students' learning, mobilize their interest in music learning, help to cultivate students' music literacy, and have far-reaching significance for students' lifelong learning.

### 3.2. Diversity

Digital technology can effectively integrate sound, picture, text and image, and make people's senses be stimulated externally. According to relevant data, these external stimuli play a very important role in students' music learning. Compared with the traditional knowledge infusion mode,

it can make students accept more knowledge and stimulate students to learn better. Music, as a subject, requires a variety of senses to participate in the learning experience. This digital technology teaching method is conducive to students' better understanding of music knowledge.

### **3.3. Accuracy**

The so-called "accuracy" mainly refers to the accuracy of music height, music rhythm, music rhythm and other contents. Music is a practical subject, which is closely related to the real life. Students should not only master the music knowledge taught by teachers, but also find the fit with the music knowledge in the classroom. In addition, students should actively practice music and deepen the understanding of music knowledge in class. This requires teachers to ensure the correctness of the knowledge points and guide students to strengthen the practice of music theory<sup>[2]</sup>.

## **4. The influence of digitalization on music teaching**

The study of music theory is the basis of understanding music, and it is the basic operation skill based on theory. Through the training in class, teachers can improve students' hearing, music thinking, aesthetic ability and appreciation ability of music. With the popularization and application of digital multimedia technology in modern music teaching, music teachers continue to create a new multimedia teaching mode in traditional ear courses. The development of digital multimedia teaching not only brings new opportunities for traditional music theory knowledge and ear training learning mode, but also provides a broader development space for students studying music at the same time<sup>[3]</sup>.

## **5. The basic structure of digital technology in music theory teaching**

### **5.1. The construction of multimedia teaching hardware**

In order to implement multimedia classroom teaching in music theory teaching, we must construct the hardware facilities needed in teaching. Only with the material guarantee of teaching hardware, can we carry out multimedia music teaching better. Generally, in the process of multimedia teaching, computer is needed, including sound card, modem, network card, TV card and other parts. In addition, it also needs to be equipped with projector, video recorder and other equipment. Sound equipment includes mixer, recording card base, sound microphone, power amplifier, electronic synthesizer, etc., which are the necessary basis for multimedia music teaching.

### **5.2. The construction of multimedia teaching software**

Compared with the multimedia teaching hardware, there are many kinds of teaching software. With the rapid development of multimedia technology, more and more music software are accepted by the public. Next, the common music teaching software is analyzed. First, word is the most widely used software for word processing. It can use modern teaching equipment such as scanners to scan scores, pictures and words in teaching materials, edit and process words according to relevant requirements, so as to facilitate subsequent learning. Second, it is the software related to courseware making, of which PPT is commonly used. It has the advantages of fast production, low cost, convenient display and so on, and is widely used by music educators. The third is sequencer software, which can shift, modify, delete or splice the recorded data, and then replay the data. There is also a kind of software to help composers record and edit tracks, as well as software to assist music discipline development and design. In addition, the music score production and printing software is also essential, which can make the printed music score more professional and

standardized.

### **5.3. Multimedia music courseware**

With the popularization and development of information technology, in the process of music teaching, there are several commonly used multimedia courseware. First, with the help of Internet technology, we can create a multi-media comprehensive classroom, create a good information learning environment for students, help teachers to carry out music teaching activities, and display music textbook knowledge in the form of text, audio, image and video. Second, to create a multimedia network classroom, teachers should make full use of multimedia teaching methods to create a good cooperative learning environment for students. Through the multimedia music courseware, the music knowledge is transmitted to the student terminal to help students better remember the music knowledge. At the same time, students can freely carry out learning activities and share the music learning resources according to the personalized learning characteristics. Third, the construction of electronic media preview room, schools to create a good personalized learning environment for students, students can through the computer terminal, access to the required personalized music resources, according to their own learning needs, independent music learning activities. Fourth, to create a campus network teaching environment, schools should create a teaching environment for students to share resources, create a database of teaching resources, and truly realize resource sharing and common learning. In addition, to create a distance learning environment, use information technology, access to distance learning resources, break the limitations of time, space, and region, and create an open teaching classroom. While helping students to build a music knowledge system, it also aims to cultivate students' independent exploration and learning ability<sup>[4]</sup>.

## **6. The application strategy of digital technology in music theory teaching**

### **6.1. The creation of interface and structure in Multimedia Design**

In the specific music teaching process, it is one of the commonly used teaching methods to teach students to use digital technology to demonstrate music scores. Teachers should carry out corresponding audio-visual activities while explaining music scores, which puts forward higher requirements for music teaching, requiring the synchronization of sound and display. In general, the display window is fixed, and there will be some limitations when demonstrating large-scale music scores. Teachers can control reasonably by rolling the slider to ensure that the music score can be demonstrated as a whole and the display effect of manually adjusting the music score can be ensured. Compared with the traditional media, the design structure of multimedia is more diversified, because the traditional media's graphics, text and sound display are separate, but also a single form of display. However, digital technology will integrate these elements organically, with diversified information structure and hypertext storage mode. The assessment of music class is not only limited to written examination, but also to listening and singing. The traditional assessment mode is to separate the two. After applying digital technology, the two can be combined for assessment. This new type of assessment method is more accurate and convenient. Students can reasonably allocate the time to answer questions according to their own specific learning conditions, rather than simply limiting a certain assessment, which not only improves the assessment efficiency, but also makes the assessment method more humane.

### **6.2. Reasonable application of interaction of multimedia courseware**

The so-called "interaction" mainly refers to making students actively participate in music

teaching activities, changing the previous passive participation mode, and increasing students' subjective initiative. For example, in the learning course of musical instruments, the constituent factors of each instrument are different. For example, Banhu and erhu belong to stringed instruments, but their timbre and range are different. Therefore, when learning these instruments, we should first master the range, timbre and timbre of these instruments. Students can feel the difference between these instruments by watching and listening to the video or audio of instrument performance, which is also an important part of the music teaching process, that is to identify the timbre between instruments. In the process of music teaching, teachers should use modern teaching equipment to show students different musical instruments, teach the method of distinguishing musical instruments, let students distinguish the names of musical instruments in "listening", fully mobilize students' enthusiasm for music learning, and let students fully participate in the process of music teaching.

### **6.3. Give full play to the guiding role of multimedia music courseware**

When making multimedia music visible, teachers should take its guiding role into full consideration, that is, to guide students through multimedia music courseware and effectively carry out music learning activities. In short, it is to let students understand the learning direction of music teaching in the later period, and use multimedia music courseware to solve the problems in the learning process in time. This not only exercises the students' ability of independent inquiry, but also helps the students to construct the music knowledge system and understand the music knowledge systematically. By using multimedia music courseware, the relationship between teaching blocks is restored, and the characteristics and structure of the whole courseware construction are mapped. In the process of traditional music teaching, it is mainly through teaching material knowledge, recording material gold that love oh learning activities, the source of information is relatively single. In general, the examination types are diversified. In combination with the specific characteristics of music major, audio-visual questions are specially set to combine audio-visual with students' personal understanding, which is more convenient than general manual examination.

### **6.4. Reasonable application of auxiliary software**

In view of the music curriculum needs a lot of audio-visual, practice, which requires teachers to use related software to carry out contact activities, and then improve the quality of teaching, consciously cultivate students' music literacy. In the process of teaching, the commonly used software includes listen. Teachers can flexibly choose suitable training software according to students' learning situation and learning characteristics. If students' music foundation is not solid, teachers can strengthen melody training and improve students' music recognition ability<sup>[5]</sup>.

## **7. The application of digital technology in music science teaching**

### **7.1. Nature of sound**

When talking about the nature of sound, listen to a Beethoven's "hero" Symphony, let students distinguish the sound color in string group, Woodwind Group, brass group and percussion group from the difference of timbre and pitch, so as to not only have a deep understanding of its concept, but also lay a foundation for later study of "orchestration". When talking about the pitch and overtone, learn from Boya's "high mountains and flowing water" for the drum Qin of zhongziqu period, so that students can understand the story of the ancients who would like to play with the instrument. At the same time, they can understand that the pitch and overtone are generated by the

whole string vibration and the segmental vibration of the ancient Qin.

## **7.2. Rhythm**

When it comes to rhythm, it is performed by drum, gongs, cymbals and cymbals. The emotion of the music is expressed by the changes of rhythm, speed, strength and performance skills. The music not only let students understand the Chinese drum culture, but also exercise students' ability of recording rhythm. For example, the syncopation rhythm in the Xinjiang Uyghur folk song "a cup of good wine" runs through the whole process, retaining the strong local ethnic flavor of Uyghur people, and students can feel the relationship between the strength and weakness of syncopation rhythm in appreciation.

## **7.3. Tempo category**

When talking about single clapper, students can appreciate the Beijing Opera "red light" to realize that in Chinese opera, only strong clapper has no special rhythm characteristics of weak clapper. When teaching polyphony, first listen to the single time music: Mozart's 2 / 4-time Turkish March. Then play the piano music of multiple time: Richard clydeman's 4 / 4 Piano Music "wedding in the dream", and then combine the two music examples to explain, students can more deeply understand the relationship between single time and multiple time. "Vast grassland" in Inner Mongolia long tune is a typical example of the explanation of the beat. The singer can improvise according to his feelings and extend a sound freely without the limitation of the beat. Let students fully understand the meaning of the beat.

## **7.4. Nomenclature of music**

When it comes to the speed and strength marks of music, take Bartoli's "wind and rain" as an example, let the students really understand the expression of breath changing, skipping and the strength marks such as strong (f), medium strong (MF), medium weak (MP), gradually weak and gradually strong in the actual works. When it comes to decorative sound, listen to the flute playing "whip up the horse to rush the grain". This flute music starts with trill, followed by forward leaning, staccato, upper Boeing, upper glide, and ends with trill. In addition to frequent leaning, staccato and Boeing, there are repeated marks in the music. This work uses a large number of playing marks and decorative sounds, which is very helpful for students to master the use of marks in the work.

## **7.5. Intervals and chords**

When it comes to intervals and chords, take the piano accompaniment spectrum of Chinese famous composer Huang Zi's art song "spring melody" as an example. The main melody can cultivate students' ability to recognize interval degrees. Accompaniment chords can practice students' ability to analyze chord structure. At the same time, during the performance, students can also feel the sounds of triads and heptaches, in situ chords and transposed chords from the perspective of hearing. Sound effect. In addition, it improves the students' application ability in their actual music works and lays a foundation for the study of harmony acoustics.

## **7.6. Modal tonality**

When it comes to the analysis of tonality, we can let students enjoy the Northern Shaanxi folk song "turning over Daoqing", Gansu folk song "white peony order", Hunan folk song "Liuyang River", etc., and then we can explain the judgment method of national tonality combining with the examples. Similarly, appreciate Beethoven's Piano Sonata, Bach's Minuet and other music to explain the judgment method of major and minor. At the same time, it will lay a good foundation for students to study the courses of "analysis of musical form" and "Song practice" in the future. Of

course, we should try our best to enjoy different themes, so as not to let students have aesthetic fatigue<sup>[6]</sup>.

## **8. The development of digital teaching in music theory teaching**

Compared with the traditional music teaching, the digital teaching method has better extensibility, because the traditional music class can only rely on their own classroom memory to practice after class, which not only can not get guidance, but also reduce the enthusiasm of students. Digital music class can solve the development problem after class. Teachers can record video, audio and contact video assignments in class and send them to students according to the needs of the course. After class, students can learn and drill by comparing with the video in class. Not only the knowledge points are clear and reference, but also easy to save, which can help students to get the most. Accurate musical intonation. With the rapid development and wide popularization of digital multimedia, in addition to teachers can use computer programs to replace traditional playing practice during the teaching period, so that students can firmly grasp the basic knowledge of music theory and strengthen students' cognition of different musical instruments, multimedia digital technology also provides more possibilities for the development of students' music scores. For example, we can use music software to produce rich MIDI of timbre to improve students' control of timbre; we can combine vocal music learning with computer accompaniment to strengthen students' cooperation ability in music; we can also improve students' self-study ability and practical ability by operating various music software, so we can say that the development of digitalization and music theory promotes students' overall understanding of music. Cognition and development<sup>[7-8]</sup>.

## **9. Conclusion**

To sum up, it is an important basic course in the music teaching process. In the actual teaching process, teachers should give full play to the advantages of multimedia teaching equipment, reasonably arrange the teaching content of the music course, improve the teaching quality and teaching effect. Music teachers should constantly innovate teaching ideas, reform teaching models, enrich teaching methods, attach importance to the main role of students, mobilize students' subjective initiative, stimulate students' enthusiasm for music, and let students fully participate in music teaching activities. Teachers should not abandon the advantages of pure traditional music teaching, but combine the advantages of multimedia teaching with the advantages of traditional media, so as to make great progress in music teaching.

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