A Study on the Application of AI Technology in Music Teaching

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Abstract: The booming development of AI technology has profoundly affected the field of education, thus this paper provides an in-depth analysis of the necessity of the application of this technology in music teaching, and points out that the traditional music teaching mode has such problems as a single form of teaching, a large limitation of teaching resources and individual differences, and a single way of teaching assessment. In view of these problems, this paper puts forward the application suggestions of AI technology in music teaching, including the use of AI technology to enrich the form of teaching, integrate diversified resources, and realize accurate teaching assessment. In music teaching, the application of AI technology to these aspects helps to promote the high-quality development of music teaching and effectively promotes the comprehensive improvement of students' music literacy.

Keywords: AI technology; Music teaching; Applied research

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The blowout development of AI technology has brought important changes to all walks of life, and in the field of education is no exception. The emergence of AI technology can make the teaching work smarter, and can provide students with flexible educational services according to their more practical needs, effectively mobilizing the initiative of students in the learning process[1] . In terms of music teaching, AI technology can deeply analyze the music works, and can effectively interact with students to correct the deficiencies shown by students in the learning process, so that students can gradually develop their own musical literacy in the repeated practice process . Based on this, an in-depth discussion on the application of AI technology in music teaching is of great significance in promoting the high-quality development of music teaching.

1. The Necessity of AI Technology Application in Music Teaching

The development of AI technology is a major feature of the current era, and the application of this technology for all walks of life have brought greater promotion, in music teaching, its learning content is relatively rich, the students' music literacy to obtain further enhancement, is bound to need to carry out a large number of music practice, but they receive classroom education time is extremely limited, and in the classroom teaching, the students and the lack of professional music guidance, even if they practice exercises after class, their problems can not be corrected at the first time, greatly affecting their learning efficiency. Even if they practice after class, their problems cannot be corrected at the first time, which greatly affects their learning efficiency[2] . At the same time, AI technology can provide students with a large number of music learning resources, through the combination of big data technology, AI technology can automatically search for related music content on the network, when students study a certain type of music, AI technology can provide students with a large number of works of the same type, so that students can compare and analyze the study, thus deepening the understanding of the type of work. On the other hand,

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in traditional music teaching, students' learning is assessed by teachers, who then adjust their teaching strategies according to students' performance, but the number of students is large, and it is difficult for teachers to fine-tune their assessment of students and individualized teaching, whereas through AI technology, it is possible to record students' learning in the course of their ordinary learning, assess their deficiencies in various stages of learning, and then design a new learning strategy. Learning deficiencies, and then design targeted teaching strategies to provide students with more refined individualized instruction, which can play a huge role in promoting the development of students' musical literacy. Therefore, with the development of AI technology, it is highly necessary to apply it to music teaching.

2. Analysis of Problems in the Traditional Music Teaching Mode

(1) Single form of teaching

In traditional music teaching, teachers pay too much attention to the development of students' theoretical knowledge and practical skills in music, and neglect the development of their interest in music learning, which can easily lead to the loss of students' interest in music subjects, and make them passive in learning, which in turn affects the effective development of their music literacy. On the one hand, due to the richness of the music course content, such as contains all kinds of musical instrument playing skills, also contains all kinds of singing songs, etc., and by the classroom teaching time limit, some music teachers in order to let students absorb more knowledge in the limited teaching time, in the teaching will be used to fill the duck type of teaching methods, the teacher to lead the teaching, the students passive learning knowledge[3] . Although this teaching method can instill a large amount of knowledge in a relatively short period of time to the students, but it will seriously damage the students' interest in learning music courses, so that the students feel that music learning is boring, and then hit their learning motivation, for the students in the learning of music courses to bring about a very negative impact, and even affect their learning status in other subjects. At the same time, in the traditional music teaching mode, teachers pay more attention to students' performance in music learning, and their teaching purpose is mainly for students' further education or examination. Under the guidance of this teaching purpose, teachers mainly let students sing or play exercises in normal teaching, and they are also led by teachers, and students' learning is very passive. Although in this teaching mode, students can quickly master some music singing or playing skills through high-frequency practice, but it is not conducive to the expression of their musical emotions, and it is difficult for students to have a deep understanding of the emotions contained in the musical works, therefore, in the traditional music teaching mode, the problem of a single form of teaching seriously restricts the enhancement of the students' musical literacy.

(2) High limitations on teaching resources and individual differences

The content of music teaching includes not only songs, but also various musical instruments, and even the teaching of songs also includes various styles, and in the traditional music teaching mode, on the one hand, by the limitation of teachers' specialties, music teachers are often proficient in some areas of music knowledge, such as some teachers are proficient in orchestral instruments, and don't have any knowledge of other types of musical instruments, and the development of students' musical interests includes various aspects. The development of students' musical interests encompasses various aspects, some of them may be more interested in musical instruments such as the piano, and teachers are unable to provide them with professional guidance, so their teaching does not play a comprehensive role in promoting the development of students' musical interests. The teaching of many musical knowledge requires rich conditions, such as musical instruments, venues, sheet music, recording equipment, etc. Taking recording equipment as an example, good recording equipment can better restore the specific performance of students in the process of singing or playing, thus allowing students to adjust their own deficiencies accordingly, which is extremely important for the growth of students, and the establishment of these

conditions requires a large amount of material costs, which are not available for many schools. For many schools, such conditions are not available. On the other hand, individual differences are an objective reality. There are objective differences in students' interest in learning and learning methods, and when the same teaching method is used to teach them, the degree of mastery varies from student to student, so teachers need to assess their learning situation in a timely manner for different students and develop targeted teaching strategies[4] . The problem of individual differences is a very important issue in teachers' teaching, how to teach students according to their specific conditions is the key to teachers to tap the potential of students and effectively develop their core qualities. At present, in the field of education, teachers generally use the layered teaching method, although it can play a certain individualized teaching effect, but in terms of the diversity of students' differences, the effect is ultimately limited, and it still limits many students' ability to learn music to a greater extent. It limits the effective development of core literacy of many students in music learning.

(3) Single method of teaching evaluation

Teaching assessment is a very important part of teachers' teaching process. Teachers need to design teaching strategies according to the results of teaching assessment, so as to give students more effective teaching guidance, i.e., teaching assessment is the scientific basis for teachers to adjust their teaching methods. However, in the traditional music teaching mode, teachers' assessment of students' learning effectiveness is still based on their skills in singing or playing music, and also pay attention to the development of their theoretical literacy in music in the assessment, but this assessment is too single, on the one hand, it is easy to affect students' interest in music learning, especially in the assessment of the poor performance of students, it is extremely easy to On the one hand, it is easy to affect students' interest in music learning, especially those who perform poorly under this assessment method, which is very easy to dampen their motivation in music learning, and is extremely unfavorable to the development of students' music quality. On the other hand, the traditional music teaching mode of teaching assessment pays too much attention to the results of students' learning, and it is difficult to play an effective role in assessing their learning process, that is, it is difficult for teachers to understand the problems of students' learning methods and attitudes through this assessment, which is not conducive to teachers' adjusting the teaching plan[5] . Scientific learning method is the element of rapid progress of students' music literacy, but the limitations of the students' own ability level, their learning methods may have different problems, which require teachers to pay attention to in the usual teaching activities, and targeted guidance, to effectively enhance the students' learning ability and cultivate their interest in learning, and the understanding of the students' learning methods requires teachers to be able to effectively assess their learning process. performance, so the problem of a single way of teaching assessment also limits teachers' specific understanding of students' learning.

3. The Application of AI Technology in Music Teaching Suggestions

(1) Enriching teaching forms to stimulate students' interest

Students' interest in learning is one of the elements that stimulate their learning motivation, if their interest in learning is sufficient, students can show greater enthusiasm in learning the content of the music course, they will also take the initiative to learn to understand the relevant knowledge, put more effort to sing or play the exercises, which is conducive to the development of their musical literacy. But the traditional music classroom teaching activities in the form of a single problem, resulting in a teacher-driven situation, students should be the main body of teaching activities, but has not been effectively embodied, and the application of AI technology in music teaching can enrich the form of teaching, so that the students' interest in learning to be inspired, so as to mobilize their motivation to learn. For example, teachers can use AI technology to provide students with flipped classroom teaching services, with only the use of information technology for the flipped classroom is different, AI technology

can record and analyze the learning situation of the students, for their learning deficiencies in the performance of effective training, at the same time, students can also be based on their own interests, so that the AI technology to provide them with the corresponding teaching content, the teaching method, on the one hand, can bring novel learning for students. This teaching method on the one hand can bring students a novel learning experience, and at the same time can also solve the problem of the lack of professional guidance in the flipped classroom, so as to effectively develop students' musical literacy[6] . On the other hand, AI technology can also be combined with the current fast-developing virtual reality technology to create a virtual learning space for students, such as Sichuan Conservatory of Music's "Under the Wutong Tree" intelligent teaching space, with the help of these technologies for students to create a set of concert halls, theaters, studios as one of the teaching scenarios, students have a better chance to learn when practicing in these scenarios. When students practice learning in these scenarios, they have a more immersive feeling, which can effectively exercise their practical ability and at the same time maintain their interest in learning the content of the music course.

(2) Integrating diversified resources to break through teaching limitations

The limitation of teaching resources and individual differences is also one of the important factors restricting the effectiveness of teachers' music teaching, while through AI technology, different music education resources can be effectively integrated, breaking through the limitation of teaching resources and individual differences in music teaching. On the one hand, due to the teacher's own knowledge reserves are limited, so they can be flexibly used in the teaching of knowledge by their own knowledge reserves level of restrictions, and through AI technology, can mobilize the search engine, and then combined with the actual needs of the teaching of the information on the network is only the collection, and the AI technology is like a brain, can be an effective integration of this knowledge, and then according to the learning characteristics of the students as well as the actual needs, to target the presentation, the AI technology is like a brain. According to the learning characteristics of the students and the actual needs of the targeted presentation, the way can effectively solve the traditional music classroom teaching activities in the teaching resource limitations of the problem. For example, some students are interested in the guitar, but the learning of this instrument not only requires a lot of theoretical knowledge, but also requires repetitive and repeated practice, it is obvious that the traditional music classroom can't provide students with multiple practice time, while AI technology can present students with professional guitar teaching videos through searching, so that students can watch the videos while practicing, and at the same time, through the interactive function of AI technology, students can learn more about the teaching resources in traditional music classroom teaching activities. The interactive function of AI technology can understand the deficiencies in their own practicing process and make targeted adjustments, effectively promoting the rapid and high-quality development of their music literacy. On the other hand, teaching students through AI technology can meet the different learning needs of each student, which is more targeted than the traditional hierarchical teaching method of music teaching, and all students can feedback their learning needs to the AI, and the AI technology can also record and evaluate the learning process of the students, and understand the specific learning characteristics of each student as well as the actual needs, so as to provide specific guidance for the students, effectively solving the problems caused by individual differences. In addition, AI technology can record and evaluate the learning process of each student to understand the specific learning characteristics and actual needs of each student, so as to provide specific guidance for them, and effectively solve the problem of limitation of teaching effect caused by individual differences.

(3) Accurate teaching assessment and promotion of personality development

In the traditional music teaching mode, the teacher's teaching assessment method is too single, it is difficult to show the students' performance in the process of music learning, the application of AI technology in the assessment of music teaching can effectively solve the problem of the single teaching assessment method of the music teacher. On the one hand, through the recording function of AI technology, it can record the specific performance of each

student in the learning of music course content, including their learning motivation, interest characteristics, etc., so as to conduct a scientific assessment of their learning process, which is conducive to teachers to understand the specific deficiencies of the students in their learning. At the same time, AI technology can also record the practice time and frequency of students' daily music learning, which enables teachers to understand more specifically how much time students can spend on music learning, and helps teachers to help students establish a more scientific learning plan, which can play a greater role in promoting the improvement of students' music literacy. On the other hand, AI technology can also collect students in the practice of audio and video content, such as their fingering when playing an instrument, and then analyze the use of AI technology, it can be more specific to present their practice deficiencies, the teacher through the AI technology to understand the specific deficiencies of the students, but also can be targeted to the teaching guide. In addition, students can communicate with teachers in real time through the learning platform built by AI technology, and feedback their doubts in the learning process to teachers, who can give timely responses according to the specific situation of students to help students solve learning problems, which is conducive to the effective enhancement of students' musical literacy, and also conducive to the development of personalized characteristics of different students.

4. Conclusion

AI technology in the field of music teaching shows great potential, and the application of this technology in music teaching, also has a greater need, through the technology can fully stimulate the students' learning initiative, so that the teaching resources to be more optimized configuration, to meet the needs of students' individual differences, and at the same time for teachers to provide a more comprehensive and accurate basis for teaching assessment, help teachers to teach according to the material, and promote the students' musical literacy of the Personalized development of students' music literacy. In the future, with the continuous progress of AI technology, its application in the field of music education will become more and more in-depth, and it will be able to provide students with more professional guidance on music education, and this technology will also play a more crucial role in cultivating talents with profound music literacy and innovation ability, and promote the inheritance and development of music culture to a new height.

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