

Artificial Intelligence Technology in the Assessment of Teachers' Music Teaching Skills Training

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Abstract: The development of modern technology and economy has fully improved people's daily life, and at the same time, the disposable income of residents has also increased rapidly. At this time, people began to pay more and more attention to art education such as music for the next generation. Education. At this time, the education and training enterprises of music and various art disciplines have a broader development market, and at the same time, the improvement of the market competition environment has also made the training mode used by various training enterprises to train the teaching skills of music teachers there are bigger deficiencies. At this time, the rise and rapid progress of artificial intelligence (AI) technology has also brought more ideas and development opportunities for the training of music teachers' professional skills. Relevant companies have begun to pay attention to the relationship between AI technology and teachers' music teaching skills training. This combination can not only fully improve teachers' music teaching skills, but also greatly shorten the period required for music teacher training. In this paper, through the in-depth exploration of AI technology, a comprehensive model for the training and assessment of music teachers' professional teaching skills based on AI technology is proposed to provide efficient training for relevant teachers' majors, so that Enable related enterprises to achieve higher quality development. At the same time, this AI technology-based training and assessment mode for teachers' music teaching skills also greatly improves the professionalism of teachers, thereby producing better teaching effects.

1. Introduction

The continuous development of AI technology not only brings new development opportunities for many industries, but also brings quite a lot of challenges. The application of AI technology in

the education industry has had an extremely profound impact on the education industry. This impact not only caused major changes in the development structure of related education companies, but also made the education and training models of different educational institutions. It is undergoing a substantial change, which has improved the teaching efficiency and also made the education field take a key step towards informatization.

At present, due to the continuous improvement of living standards and quality, people gradually began to shift from the pursuit of material satisfaction to the pursuit of spiritual satisfaction, and began to devote more attention to the field of art education. McPhail Graham explored the importance of music education in the middle school education system. First of all, he conducted an in-depth study on the middle school teaching system, and determined that the current middle school teaching system neglected the cultivation of students' art appreciation ability [1]. Palmer Elizabeth S studied some descriptions of social justice in related literature on music education. Through the investigation and analysis of related concepts, it was determined that oppression and injustice still exist in the existing music education model. People of insight are needed to make some changes to this kind of status quo [2]. Kallio Alexis Anja conducted research on decolonized music education. Through the analysis of the teaching model and the responsibility division model of related methods in this education, he determined the various needs of people for music education [3]. Bautista Alfredo investigated the role of classroom videos in music teaching. Through the investigation of multiple music teaching classrooms, it was further confirmed that music-related videos in the classroom are of great help to teachers' music teaching efficiency [4]. Kratus John explored the effect and efficiency of the professional and amateur teaching modes of music teaching in a certain area. First, he investigated a number of professional music teaching classes and amateur music teaching classes, and conducted a professional evaluation of the students' musical ability. Assessment and analysis, thus confirming that the two teaching modes have different effects in different fields, but the professional music teaching class has a better teaching effect [5]. However, the current training mode in the field of music education has been increasingly unable to meet the needs of the development of the current era, and it is extremely urgent to change.

Therefore, researchers try to combine AI technology with music teaching and training, so as to propose a music teaching training and assessment model that meets the development requirements of the current era.

Hong Yun Zou explored the function of AI technology and other similar technologies in the music education of games. First, he proposed a decision support system to realize this function, and then through the in-depth study of AI related technologies Analysis, to determine the effectiveness of the combination of music teaching and AI technology [6]. Kayis Mert used AI technology to classify classical music in a certain area, and then analyzed the local music education model in turn. First, he conducted an in-depth analysis of AI technology and determined that this technology is related to music education. The combination can provide music education to more people in the region at a smaller cost [7]. Moreno Alberto explored the application of AI technology in music teaching. Through some operations that need to be carried out in music teaching, he determined that AI technology can be better used in music teaching. At the same time, this Teaching has a positive effect [8].

Although many researchers have conducted research on this content, these studies cannot combine music teaching and music teaching ability training, and further development is still needed.

The current AI technology has had a great impact on the cultivation of the professionalism of music skills; the ability to perceive aesthetics, the expression of music art and the understanding model of music culture in music education, making the teaching mode of these abilities become it is more interesting and attracts more students to learn related abilities. However, there is still a

relatively broad development space for the application of AI technology in the music education industry, so relevant researchers are still needed to invest in the research of the application of AI technology in the field of music education.

2. Teacher Music Teaching Skills Training Assessment

2.1. Music Teaching Skills Training

The continuous development of AI technology not only makes the training of music teaching skills more possible, but also gives birth to more professional teaching tools in the field of music. The combination of these new training models and teaching tools makes the professional skills of music teachers. The training efficiency and effect have been greatly improved. The first is the optimization of the training mode for music teachers, mainly through the in-depth combination of AI technology and some wireless communication technologies to create a more refined comprehensive information on the cultivation of music teaching ability of music teachers platform, the teaching objectives and teaching methods of music teachers can be stored in this information platform, and the data is analyzed and processed by AI technology, and then the comprehensive information platform can provide music teachers with the development according to the requirements of education in real life. Directions offer some useful advice. On the other hand, AI technology also provides great convenience for music teachers in the retrieval of certain types of music, and at the same time, it also greatly changes the way they appreciate music. The current teaching mode Among them, the selection of appreciation tracks depends more on the teacher's preference, while the selection of music tracks in the track appreciation under AI technology is more based on the analysis of the current scene by AI technology, so that according to the relevant teaching objectives and The most suitable track can be selected according to the scene, and this mode of selecting tracks by AI technology can bring better teaching effects to students. In addition, in the training of teaching skills of music teachers under AI technology, more students can be simulated so that music teachers can feel an atmosphere in the actual teaching classroom and achieve a better training effect. The structure of the traditional teaching mode is shown in Figure 1.

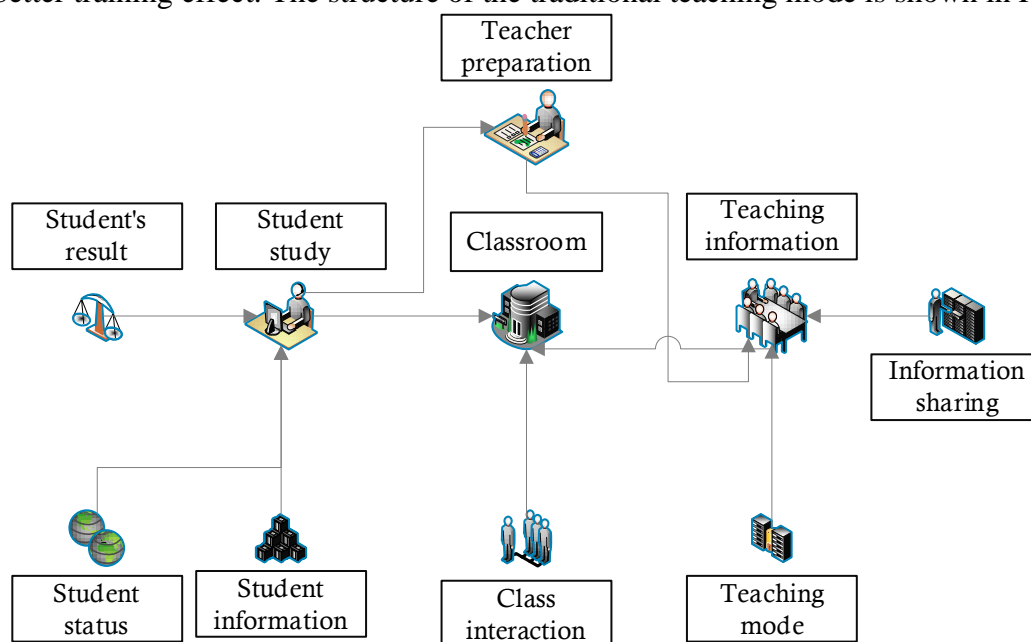


Figure 1. Schematic diagram of the structure of the traditional music teaching model

2.2. Assessment of Music Teaching Skills

At the same time, the assessment mode of music teachers' teaching skills has also undergone great changes with the integration of AI technology. In music education, there are generally many types of music, and these different types of music generally music teachers only need to master One of them is enough, so how to set up the assessment of music teaching skills in different situations according to the music type selected by the music teacher has become a difficult point in the traditional professional teaching skill assessment of music teachers, and it is also the focus of the assessment object. Through the collection and analysis of a large number of different types of music, AI technology can classify these music tracks more accurately, so as to automatically and accurately judge the teaching type of music classrooms. This kind of judgment can provide a clear assessment target and scope for the assessment system of professional teaching skills of music teachers. At the same time, this analysis mode can also be used in the selection of assessment repertoires. In-depth analysis of the degree of music teachers to determine the mastery of the professional teaching skills of music teachers, so as to select tracks of different difficulty to assess the teaching ability of music teachers, so that the ability of professional teaching skills of music teachers can be accurately controlled, so as to control The progress of teaching. At the same time, the test questions that music teachers need to answer when accepting professional teaching skills assessment can also be selected or planned by the comprehensive information platform built by AI technology. Such questions can more comprehensively consider the professional teaching ability of music teachers. Finally, AI technology analyzes the learning situation of music teachers in the usual teaching ability training, and through this kind of data collection and analysis day after day, comprehensively evaluates the mastery progress of music teachers' professional teaching skills, so that the assessment results of the professional teaching skills of music teachers are more accurate. The structure of the comprehensive information platform based on AI is shown in Figure 2.

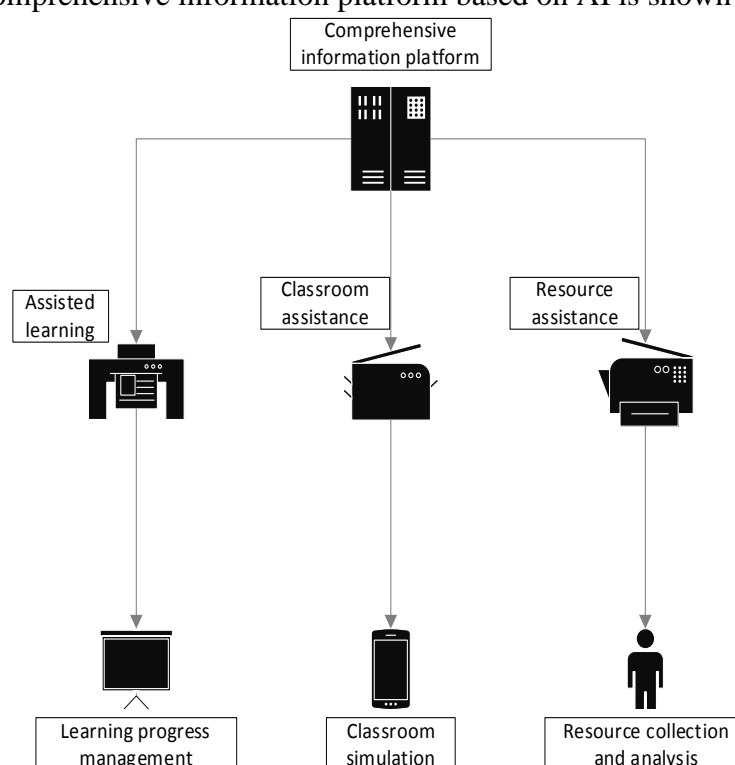


Figure 2. Schematic diagram of the AI-based comprehensive information platform structure

3. Artificial Intelligence

3.1. Music Teaching under AI

AI technology is a relatively important branch of computer science and technology. Its original goal is to realize the understanding of the essence of intelligence, so as to build a new type of machine that can possess partial intelligence of humans based on this understanding. 错误!未找到引用源。 . This kind of machine can make appropriate responses to different scenes or actions through the collection and analysis of large amounts of data [10]. At the same time, AI technology was divided into two categories in the early days, namely general-purpose AI and special-purpose AI. As the name suggests, general-purpose AI is an AI machine that can be applied to various scenarios. It has a human-like Wisdom and learning ability can respond to the observation of the surrounding environment and conditions. Due to the high requirements for hardware and various theories, this technology is still in its infancy [11]. The other special-purpose AI has a better development progress, and it has been widely used in image analysis and various data processing fields, and the AI used in this paper is the special-purpose AI. The combination of this special AI technology and music teaching has led to the birth of a large number of intelligent musical instruments, and this intelligent musical instrument has a good effect in teaching music teachers to beginners, and it also makes music teaching for students [12-13]. The dependence of the learning effect on the teacher's ability is greatly reduced.

3.2. AI Algorithm

This paper mainly uses the decision tree algorithm in the AI technology, first of all, the calculation of the information entropy A of the sample set composed of the data of the music track, as shown in the formula (1).

$$A = - \sum_{n=1}^i p_n \log_2 p_n \quad (1)$$

Among them, p_n it represents the proportion of the n th sample in the sample set. Then it is the calculation of the weight B of the number of samples of different categories, as shown in formula (2).

$$B = - \sum_{v=1}^v \frac{A^v}{A} \quad (2)$$

4. Simulation Experiment of Teachers' Music Teaching Skills Training and Assessment under AI

The continuous development of AI technology has made its application in various fields more and more in-depth, and this paper uses AI technology to conduct in-depth analysis and optimization of the current music teacher's professional skills training and assessment mode, so as to build a A training and assessment model for music teachers' professional skills based on AI technology. This new training and assessment model has greatly improved the efficiency of training and assessment, and has also greatly improved the accuracy of assessment [14].

At the same time, this paper analyzes the current training and assessment model of professional skills of music teachers and the new training and assessment model, as shown in Table 1.

Table 1. Comparison between the existing music teacher professional skills training and assessment model and the new training assessment model

	Training efficiency	Training results	Assessment accuracy
Teacher ability	10	10	10
Existing model	4.6	5.9	6.7
New model	6.8	7.2	8.3

Combining with Table 1, it can be clearly seen that the training and assessment model of the new music teacher's professional skills combined with AI technology has better performance in terms of training effect, training efficiency and assessment accuracy, and this also shows that AI The reliability of the application of technology in the training and assessment of music teachers. First of all, it can be seen that the new training and assessment model after the integration of AI technology has the highest improvement in the accuracy of assessment. Analysis and processing, and the combination of this daily analysis and final test results naturally has higher accuracy.

5. Conclusion

In the current development history of music education, with the rise and rapid progress of various modern technologies, great changes have taken place in both the ideological education and teaching methods in music education. Education has an extremely important impact, and it also has a greater effect on people who receive music education [15]. AI technology was first proposed to build a machine capable of human intelligence or learning ability, so that some of the work that requires manpower can be replaced by robots, thereby saving the operation of enterprises or other groups. Cost. However, since the current level of technology is far from being able to achieve the ultimate goal of this AI technology, the current AI technology is only combined with some other traditional fields to optimize it to a certain extent. The combination of AI technology and music education is an inevitable development of the times. The early application of AI technology in music education is only a preliminary combination with various musical instruments, so that the musical instruments can be used in the process of performance. Smaller size, more functions. With the gradual development of AI technology, its integration with the field of music education has gradually deepened, and AI-based electronic musical instruments and teaching software have appeared on a large scale, and have a greater positive effect on the field of music education.

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If any, should be placed before the references section without numbering.

Data Availability

The datasets used during the current study are available from the corresponding author on reasonable request.

Conflict of Interest

The author states that this article has no conflict of interest.

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