Innovative Research on the Teaching Mode of Piano Group Lessons in Higher Vocational Preschool Education Based on AI

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Abstract: The current AI technology has penetrated into many aspects of the education field (as shown in figure 1), and has made innovations in teaching models, courses and systems. Based on the background of AI, the preschool piano group teaching of higher vocational education has gradually become a mode of personalized learning, adaptive learning, deep learning, and human-computer collaborative learning. This article will analyze the current situation of piano group lesson teaching and propose innovative strategies to improve piano group lesson teaching in higher vocational preschool education.

1. Introduction
Piano is an important tool for cultivating children’s music aesthetic ability. Teachers need to innovate the teaching mode of piano group class and integrate AI to improve the quality of students majoring in preschool teaching in higher vocational colleges. In the form of courses, it is necessary to change the unity and staticity of traditional courses, and develop towards dynamic and network methods. It is necessary to transform fixed, unified and limited teaching into unlimited, open and targeted. In terms of curriculum orientation, it is necessary to pay attention to the differences and integration between piano group lessons and others to cultivate students’ core qualities such as creativity, communication and cooperation and improve the teaching effect and quality.

![The Scale of China's AI Industry](image)

Figure 1. The scale of China’s AI industry

2. The present situation of piano group teaching in preschool education
2.1 The teaching mode is old-fashioned without clear teaching objective
The traditional piano group teaching mode of higher vocational preschool education is mainly taught by teachers. Due to the poor ability of reading music, students can only practice music after the teacher’s teaching, and they cannot do independent practice. As a skillful course, piano requires more practice and playing to improve. However, the teaching mode is outdated, focusing only on indoctrination, while ignoring the students’ grasp of the situation, which results in the students’ low participation, poor learning and unsatisfactory teaching effect. In many higher vocational colleges, piano group teaching in preschool education does not have clear teaching objectives, which leads to problems in teaching methods and fails to improve students’ professional application skills.

2.2 The curriculum is unreasonable and the students’ music foundation is poor
Many students majoring in preschool education in higher vocational colleges are admitted through the study of cultural courses. They have never been exposed to music-related courses before. They do not have any theoretical basis of music in the piano group class, and it is easy for them to have difficulty in reading music and inaccurate rhythm. However, many higher vocational colleges will offer piano without music theory and other courses as the basis, which has caused great problems. When students encounter difficult problems such as attachment and segmentation, students who do not have a musical foundation or have a poor sense of rhythm cannot understand. It will also reduce students’ enthusiasm and affect teaching efficiency.

2.3 The mode of group teaching is more rigid
Although the group piano teaching mode allows students to cooperate in groups and carry out learning through cooperative discussions, students’ thinking can be communicated with each other and creativity can be stimulated. However, some teachers use classroom management and methods when conducting piano teaching. First of all, teachers lack management of the classroom, and the effect of student group cooperative learning is poor. It is easy to deviate from the discussion topic without clues. If the teacher does not give scientific guidance, the discussion will be very intense without helping students’ abilities and thinking. Secondly, students have no pertinence and purpose in group discussions. Finally, teachers do not study the way of cooperative learning deeply, and fail to combine the actual situation of students with the teaching, which leads to lower teaching efficiency.

3. Piano group teaching mode innovation strategy based on AI

3.1 Chang and adopt diversified teaching modes
In professional music colleges, talents trained in piano lessons are mainly professional performers, while the purpose is mainly to improve students’ music literacy and provide relevant auxiliary. Therefore, for higher vocational colleges, the purpose of the courses should be found before piano teaching to effectively improve the students’ music literacy. It is very important to choose a teaching method suitable for higher vocational students and adopt an effective talent training mode.

For example, teachers can start teaching by establishing an interactive group piano system. If teachers adopt traditional teaching methods, it does not conform to the rules of piano teaching, and the classroom effect cannot be guaranteed. Therefore, teachers can cooperate with computer technology and electrical engineering teachers based on AI technology. To jointly establish an interactive group piano system to adapt to the current teaching situation. Teachers can use the system to make students adapt well to the piano lessons. If students have some small problems when playing the piano, the interactive system can detect the problems in time and inform the students in the form of message prompts, so that the students can carry out targeted training. For some shy students, the use of interactive systems is also a good way. Students can choose a virtual or a real teacher, so that they can consider the problem from the student’s perspective and make the student better adapt to the teaching method. When performing teaching, students cannot easily perform in front of teachers and classmates. If you use an interactive system, you can let students play by themselves. If there is a problem with the
performance, the interactive system will also scientifically evaluate in the form of a performance report. Students can practice on the evaluation to better grasp the music knowledge, and effectively improve the efficiency of the classroom. The application of the interactive system can be used in teaching and testing. After the piano group class is over, teachers are bound to test students. However, due to problems such as teaching funds, vocational colleges do not have a large number of pianos, which leads to more time spent in the test. However, the application of interactive system can solve this problem well. When students play through the system, the repertoire they choose is random so that students’ comprehensive quality of music can be better examined, and the time required for the examination is also greatly reduced. The system will make a comprehensive judgment of students’ level through the short playing time to promote the test of teachers. The effective application of the interactive system enables teachers to change the previous complicated mode, and make the teaching more relaxed, and enable students to better master piano skills and improve the comprehensive quality of students.

3.2 Using stratified teaching method to refine the specific situation of students

Since the teaching mode of group class tends to be holistic, the teacher explains the fixed songs in class. All students study together to make the classroom reduce the pressure of teachers’ teaching with strong integrity. The disadvantages of this method is also very obvious, because the teaching is difficult to notice each student’s feelings. What can be achieved in this method to the teaching is not very significant.

For example, teachers can adopt hierarchical teaching method combined with intelligent interactive equipment to carry out teaching to better adapt to the group curriculum. Teachers can use intelligent interactive devices to test students’ basic music knowledge. Students with similar music foundation are grouped, and then specific guidance and homework assignments are made according to the shortcomings of different groups of students. Moreover, students in the group can learn from each other, which can shorten the time for teachers to teach in different groups. Teachers should also teach students to feedback their own situation through an intelligent interactive system after learning to better record their own learning. After students can effectively use the grouping learning method, their learning efficiency must be improved, and students can better master more knowledge in the limited time.

3.3 Strengthen the practice link and enhance the student’s practical application ability

The training of music talents in higher vocational colleges is different from this college and other art colleges. Students in higher vocational colleges will face the problem of employment after graduation. Therefore, the training of students should be more biased towards the practical application of knowledge. For the music major, the main employment direction after graduation is only piano companies and various colleges, so its requirements for students’ practical ability are very high. Therefore, teachers should not forget to strengthen the practical ability of students while conducting theoretical teaching. According to the current survey and research, the requirements of major enterprises for the practical ability of students are increasing day by day. Especially the practical analysis and the literature retrieval ability closely related to preschool education requires strong practical ability as the basis (as shown in table 1). Therefore, improving students’ practical ability is of great significance to students’ future development.

| Index variable               | Practical ability | Innovation ability |
|------------------------------|-------------------|--------------------|
| Independent learning ability | 0.163             | 0.128              |
| Theoretical learning ability | 0.739             | 0.203              |
| Practical analytical capability | 0.602          | 0.312              |
| Project R & D capability     | 0.324             | 0.802              |
| Award-winning capacity       | 0.273             | 0.828              |
For example, teachers can take online practice methods to improve students’ practical ability. As the current development of AI is gradually improving, teachers can change the traditional practice methods and choose more targeted and scientific practice methods to enhance students’ practical ability. The main core thinking of AI is the effective use of interactive ideas. For students’ practical aspects, if interactive ideas can be used to make related small programs so that students can learn in practical aspects after learning. For the future development of students, it will definitely achieve half the result with half the effort. Let the mini program perform targeted simulations of relevant practical links and teachers can use the mini program to arrange students’ homework. The program can well simulate the problems that may arise in practice to improve. The ability of independent innovation and mechanized practice simulation is far from enough. It requires teachers to carry out relevant practical work with enterprises. Because the application of preschool education majors is not very extensive, which brings time and space problems to practical activities. Teachers can negotiate with companies and build a practical platform between students and companies based on AI technology, so that students can contact working companies through the Internet and AI technology. The current very popular VR technology can also be specifically applied in the practice link, allowing students to abandon the constraints of time and space and better invest in the practice link. It allows students to carry out practical activities to fundamentally improve their own practical ability, which will help students achieve better results in future.

4. Conclusion
To sum up, based on the background of AI, vocational colleges should innovate the piano group teaching mode of preschool education to make students meet the needs of the times and cultivate talents for the new era of early childhood teaching. So higher vocational colleges should be combined with the actual situation of students learning piano course, using AI to adopt diversified teaching mode, strengthen the students’ practice, the goal, the method, and mode reform the innovation, constantly summarize and explore the experience, promote the preschool education in piano teaching in high vocational colleges.

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