Research on Teaching and Practice of Piano MOOC in University

Jia Zhu[1,2]*

[1]College of Art, Hainan Tropical Ocean University, Sanya, 572022, China
[2]Department of Culture and Arts, Hoseo University, Asan, Chungcheongnam-do, 48498, Korea
jiazhu@hntou.edu.cn
*corresponding author

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Abstract: This paper analyzes and studies the application of MOOC teaching method in the teaching mode of piano course in Colleges and Universities under the background of the new curriculum education and teaching reform. This paper analyzes the current situation of piano courses in Colleges and universities in China and the characteristics of MOOC teaching, organically combines and applies the two, and gives the design countermeasures, forms a new teaching reform mode of piano courses in Colleges and universities, promotes the teaching quality of piano courses in Colleges and universities, allows students to better learn piano courses, and provides experience and teaching results for peers.

1. Introduction

In the current stage of social development, the market demand for applied talents is increasing year by year (Wang 2020). We need more applied talents to promote the continuous development of society. In order to adapt to the social development, the piano education in Colleges and universities should take the cultivation of applied piano talents as the traction, strengthen the cooperation with other music courses, establish a complete and unified teaching system, and constantly respond to the social development with self- transformation to meet the needs of social development. In recent years, with the continuous promotion of teaching reform and quality education, many colleges and universities are exploring new piano teaching mode, which has laid the foundation for promoting the development of piano teaching in Colleges and universities, and piano education is also facing rare development opportunities. In the traditional piano classroom teaching, the piano teaching in Colleges and universities mostly adopts the class teaching system, and the teaching mode of group teaching is adopted. Due to the lack of class time, it is difficult for teachers to consider the learning situation of each student, and it is not easy to find the students' short board, so the teaching effect and teaching pertinence are not strong. Students with poor foundation are difficult to get the teacher's answer in time. As time goes by, it is easy to fall behind the teaching rhythm of the teacher, lose interest in learning, and it is difficult to mobilize learning enthusiasm, which ultimately affects the overall teaching quality (Yu 2019, Zhang, Shen, Li,etc. 2020).

Taking MOOC as the main method of piano teaching in Colleges and universities is a new teaching work formed in the implementation of piano teaching in Colleges and universities in China

at this stage, and also a teaching work that should be focused on and perfected in the development of music teaching in Colleges and universities in China. The traditional teaching mode, whether in time, money, space, transportation and other aspects, has to pay a high price. The high threshold will exclude most students from the door of art. In addition, many students can not get the correct guidance and help from teachers in the practice process, so the learning effect is not ideal (Zhang 2018). The piano MOOC, which came into being, provides a convenient, time-saving, labor-saving and effective way. The content of the piano MOOC is rich and comprehensive. All the tracks include both the master's audio and video. Students can enjoy and analyze the rhythm and style of each phrase along with the teacher, which greatly increases the effective learning time of students, greatly reduces the errors, and can complete the learning tasks assigned by the teacher on schedule (Ni 2019).

Piano MOOC can change the original teaching mode, pay attention to students' differences, realize personalized teaching, and improve students' application ability and creativity. By using mixed teaching and giving full play to the advantages of network teaching, the classroom content changes from knowledge explanation to network teaching. MOOC teaching mode can not only increase the interaction between teachers and students and personalized communication, cultivate students' autonomous learning ability, but also has important practical significance in improving teachers' teaching skills, improving students' interest in learning and realizing the sharing of educational resources.

2. The Main Features of MOOC

2.1. Convenience

As the development of MOOCS is closely related to the application of Internet technology, it has the characteristics of learning at any time and anywhere in the Internet era, and changes the learning mode of learning together into individual learning. Different from the traditional teaching which divides the time into class, after class and after school, MOOC is studied through the Internet. Students can arrange their study time reasonably and flexibly according to their learning and living conditions. There is no need to go to the teacher specially, and there is no need to rush to listen to a professor's lecture. MOOC learning is not affected by time and space, which provides very convenient conditions for students' learning.

2.2. Large Scale

First of all, the scale of MOOCS is huge, which is mainly reflected in the large number of people learning MOOCS. Different from the traditional courses with only dozens or hundreds of people, MOOC has a larger audience, and the number of learners of MOOC is increasing. According to statistics, the free course of introduction to artificial intelligence, which was opened in 2011, attracted 160000 students from more than 150 countries to register, and more than 20000 students completed the course. With the rapid development of MOOC, more and more students know about MOOC, and the number of registered students on MOOC platform has been growing rapidly. In addition, due to the invulnerability of the network, students can conduct online discussion or exchange with each other through the network platform, raise and solve problems through mutual discussion, thus greatly improving the efficiency of learning (Wang 2020).

Table 1. Number of online MOOCS and number of learners Online

Year(s)	Quantity (door)	Number of students (k)
2017	3200	55000
2018	12500	200000
2019	15000	270000

2.3. Inclusiveness

MOOCS are very inclusive, and the scope of MOOCS is all learners in the world. All the people in the world, no matter what nationality, belief, religion and living habits, can choose their own courses of study according to their own needs. All people can learn what they want in MOOCS. For students, the learning content of MOOC has changed from relatively fixed curriculum resources to flexible choices. Students' learning of the course is no longer limited to schools, majors, teachers and countries. "Mogao" not only provides students with a new field of learning, but also improves students' autonomous learning ability to a great extent.

The inclusiveness of MOOC is also reflected in the diversity of courses, including not only natural science and technology, but also social science and technology, humanities and other aspects. In short, there are many contents of MOOC, basically including most disciplines and knowledge. "MOOC" is a high-quality course collected from all over the world through relevant institutions, covering different countries and cultures, which is really one in a hundred (Xu 2019).

3. The Shortcomings of Piano MOOCs

Although the network has developed to an unprecedented height, network education has been very popular, but due to the influence of teachers and the inherent characteristics of art, there are some problems in the teaching process of college piano MOOCS.

3.1. Some Teachers Failed to Change Their Traditional Teaching Ideas

In essence, MOOC is an epoch-making new teaching concept, which is not only a simple change in educational methods, but also a systematic education reform. To adopt MOOCS teaching method, we must systematically adjust and change the educational concept, teaching tools, teaching methods, classroom design, exercise test and other aspects, and closely cooperate with each other to achieve actual results. Some teachers neglect the important role of MOOCS, fail to effectively use MOOCS in piano teaching activities according to the specific needs of teaching, or lack of application skills and experience, and fail to make full use of micro lecture to assist students' learning activities, which affects the full play of MOOC, some teachers with high teaching level are not proficient enough in MOOC technology, which also affects the effect of MOOC teaching (Zhang 2020).

Teachers need to spend a lot of time and energy in the early and late stages of the MOOC. In the process of MOOCS production, the preparation of teaching materials, the organization of course teams, the design of teaching links and activities, and the video shooting need teachers' careful preparation and planning. In the course of offering the course, a lot of time should be spent to participate in the discussion and Q & A of learners on the MOOC platform. Colleges and universities are unable to fully support the construction of MOOCS and are subject to the existing assessment system. Therefore, the willingness to apply MOOC to improve teaching is generally not strong, and the enthusiasm to participate in the reform of MOOC teaching mode is not high (Liu 2019).

3.2. Students have not Yet Developed the Ability of Self-Determination

For MOOC learning, due to its low threshold, no hard constraints on learning effectiveness, can freely choose courses and give up courses, so it is difficult for learners with insufficient autonomous learning ability to adhere to this. Although MOOC has a large number of participants, the real completion rate is very low. This is mainly due to the fact that most of the learners are lack of a complete plan for autonomous learning and have randomness. Many people just hold a curiosity and a sense of freshness in the learning of MOOCS, and have a high enthusiasm for learning at the beginning of learning. However, with the learning of the course, once they encounter difficulties, they will give up directly (Ke 2016, Li 2019).

Students who are used to the traditional teaching methods can not adapt to the MOOCS learning mode which requires higher self-control and self-control ability in a short time, which affects the learning effect (Zhang 2016). The large-scale characteristics of MOOCS are doomed to fail to pay great attention to every learner like the traditional classroom, and can not solve the difficulties encountered in learning face-to-face in time, which is especially unfavorable to those students with less knowledge reserves and low learning efficiency.

3.3. MOOCS Lack of Interaction between Teachers and Students

MOOC teachers generally have such a problem, that is, they don't know the acceptance of students. Therefore, MOOC teachers often say that "students who understand will be deducted by 1", but this practice has not had a great effect. Because many students didn't attend the class, but in order to cope with the teacher, they deducted 1. But if it is in the real class, the teacher can flexibly teach according to the whole class atmosphere. This is the problem of MOOCS. At the same time, it is difficult for students to communicate with teachers in MOOC class in time. Because there are many students in MOOCS, it is difficult for teachers to take into account each student. Therefore, even if some students make a problem on the screen, with the continuous swiping of the screen, the teacher may not be able to see it.

4. Coping Strategies

In order to effectively make up for the existing problems and deficiencies in teaching, according to the basic situation of the new era of piano MOOC teaching, the author thinks that the following measures should be taken in teaching, so that MOOC can play a more effective role in the application of piano teaching.

4.1. Rational use of MOOCS to Cultivate Students' Practical Skills

Piano is a very comprehensive subject. We should not only let students master the basic theoretical knowledge, but also inherit the traditional teaching content and break the single piano teaching mode. In the whole classroom teaching activities, through imitation, improvisation, creation and other forms, to inspire students' thinking, stimulate their imagination, expand their music thinking space, cultivate students' practical skills, and better carry out various teaching activities of piano application. Therefore, we should make rational use of MOOC in teaching, show the teaching content for students, let them effectively participate in learning activities, and then stimulate students' interest and enthusiasm (Xu 2017). The teaching method of impromptu playing is adopted to enable students to play staff and simplified music in a short time, so as to improve the ability of impromptu accompaniment and create conditions for students to learn effectively. At the same time, we should pay attention to the relationship between disciplines, and integrate harmony,

composition, music analysis, piano accompaniment and other effective integration to make them penetrate each other. So as to deepen students' understanding of the application of piano theory knowledge, promote the improvement of students' practical skills, achieve better teaching and learning effect, and promote students' practical skills of piano application (Huang, Chen, Ding 2019).

"MOOCS" teaching mode has a great characteristic, which is different from the traditional teaching methods in the application of Internet, computer and other multimedia. It requires the teaching methods that adapt to it. MOOCS teachers should consider the learning content and specific teaching methods. Instead of relying too much on classroom teaching, teachers should actively change their roles, release learning contents in advance, and focus on guiding students to learn. They are more responsible for understanding students' problems and guiding them to use knowledge, providing online Q & A in the learning process and solving problems in class. It is suggested that MOOC teachers should provide detailed and reasonable course learning schedule and learning planning when arranging and planning courses for students' reference before learning.

4.2. Enhance the Interaction between Teachers and Students in MOOCS

In reality, the classroom has a very active atmosphere, so for MOOC, it is particularly important to enhance the interaction of the classroom. Because in real life, there are many unpredictable situations. For example, the students are not in good condition or some students have some doubts about the course. In fact, these problems also exist in MOOCS, so it is particularly important to enhance the interaction between teachers and students in MOOCS. Therefore, at this time, we should improve the live broadcast equipment of MOOCS, so that some students with problems can put forward their own problems in time, and let teachers carry out appropriate reform of their teaching according to the problems. Under the condition of network training, the ability of teachers should also be guaranteed. Although MOOC has no face-to-face intuition in real teaching, it still has the characteristics of change, so it is very important to cultivate teachers' adaptability.

4.3. Encourage School Enterprise Cooperation to Improve the Quality of MOOCS

MOOC is an educational resource with video as its core. MOOC team should make MOOC videos with beautiful pictures as far as possible. When the video can not achieve the expected effect of conveying information, we should actively consult with the enterprise team with video production experience, tell the enterprise team what video effect they want to achieve, and jointly find the best solution to improve the completion of MOOC video. As for the promotion and production of MOOCS, the MOOCS team can also let the enterprise team be responsible for the production of pre-designed schemes. Excellent MOOCS publicity is easier to attract online learners to sign up for study. In addition, in order to improve the development ability of MOOC team, students in the team should be encouraged to actively participate in systematic enterprise training, so that they can continuously tap their potential in various aspects in practical learning. Enterprises and different colleges and universities continue to cooperate to create a new mode of operation, University MOOC team can also get more practical skills through the systematic training of enterprises, the efforts of both will jointly improve the quality of MOOC.

4.4. Optimizing Teaching Quality and Methods

Since entering the Internet era, the traditional teaching mode has no greater attraction for students (Zhang, Zhang 2020, Shen，Zhang 2018). Promoting the MOOC teaching mode to applied piano teaching and mixed teaching in the way of multiple assistance can improve students' learning

interest, change the traditional teaching mode and improve teaching quality. MOOC has a variety of means. We can regard these means as the constituent elements of teaching content and means reform, which is in line with the learning habits of modern students. The learning approaches of modern college students are not limited to textbooks and classrooms. They will take the initiative to learn through libraries, networks and media, which provides a premise for MOOC's online video learning. Some students already have certain autonomous learning ability and can carry out autonomous learning according to the requirements of teachers. Although a small number of learners' autonomous learning ability is not strong, driven by the whole atmosphere, part of each class is set aside for students to show opportunities to improve students' interest and enable students to learn independently. The application of innovative techniques in piano can improve the ability of playing song accompaniment, impromptu accompaniment and simple song arrangement in a short time. With the application of MOOC teaching, students can watch these videos in advance through the teaching website before class, so that students can open the website in dormitories, piano rooms and other places. MOOC teaching relies on the campus network platform for targeted learning, and the classroom has become a place for centralized Q & A and joint practice. Students can control their learning speed, and review and practice after class can also be selected according to the degree of difficulty. Its biggest advantage is that they can watch it again and again at any time.

4.5. KNN Model

The Chinese name of the KNN algorithm is the nearest neighbor algorithm, which compares a given test tuple with its similar training tuple for learning. and filtering, web page classification, data regression, product recommendation, etc. The algorithm assumes that a sample, most of the k most similar (closest) samples in the feature space are classified into one of the categories, then the sample is also classified into this category, the algorithm selected by the algorithm Neighbors are correctly classified objects. Simply put, there is a bunch of classified data information ω_1, ω_2, and ω_3. When a new data information x_u is added, the vertical distance between x_u and each point in the training data is calculated, and then the K closest to x_u is selected. If the majority of points in x_u belong to ω_1, then according to the principle of the minority obeying the majority, the new data of x_u is classified into ω_1.

Usually, the similarity between the test sample and the training sample is measured by Euclidean distance, the Euclidean distance expression between two text vectors a and b, such as formula (1).

$$D(a,b) = \sqrt{\sum_i (a_i - b_i)^2} \tag{1}$$

If the number of training samples can tend to infinity, and the value of K is fixed, then all the K nearest neighbors will converge to x_u. Similar to the nearest neighbor rule, the labels of the K nearest neighbors are all random data, and the probability $P(\omega_i|x_u)$ (i=1,2,…, K) are all independent of each other. If $P(\omega_m|x_u)$ is the larger posterior probability, according to the Bayesian classification principle, the category of ω_m is selected. The nearest neighbor rule selects the category according to the probability of $P(\omega_m|x_u)$, and according to the K nearest neighbor rule, the ω_m category can only be determined when most of the K nearest neighbors are marked in the ω_m category. The probability of this determination is Mode, such as formula (2).

$$\sum_{i=(K+1)/2}^{K} \binom{K}{i} P(\omega_i \mid x_u)^i [1 - P(\omega_m \mid x_u)]^{K-i} \tag{2}$$

Generally, the larger the value of K, the greater the probability of selecting the ω_m category.

5. Conclusions

To sum up, in the combination of MOOC and Piano Teaching in Colleges and universities, due to the advantages of MOOC teaching application, the teaching mode in the development of college piano teaching has changed significantly, and with the change of MOOC teaching application mode, people pay more and more attention to the application demand of MOOC teaching. In the new era of piano MOOC teaching, through the effective use of MOOC, students' interest and enthusiasm can be stimulated, so that students can more effectively participate in piano learning, and thus promote the teaching effect. According to the piano teaching content and talent training objectives, innovative teaching methods and methods, so that students can more effectively integrate into learning activities. In order to mobilize students' enthusiasm, promote MOOC to play a more effective role, to ensure the improvement of the teaching effect of piano MOOC in the new period.

Acknowledgements

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