

Innovative Strategies and Practical Applications of Blended Piano Teaching in University based on MOOC

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Abstract: Based on MOOC, the blended teaching mode of piano in university have shown significant advantages in enhancing teaching efficiency and students' independent learning ability due to its openness and richness of resources. Traditional piano teaching is mostly a "one-to-one" mode, which is effective, but with high cost and limited coverage, it is difficult to meet diversified learning needs. This study focuses on MOOC-supported blended piano teaching in university, and proposes innovative teaching strategies and practical paths. The study shows that MOOC blended teaching provides a more efficient and flexible solution for piano courses in in university, and puts forward suggestions for optimizing resources and evaluation mechanisms, providing new ideas for innovation in music education in university.

Keywords: MOOC; College piano; Blended teaching; Innovative strategy; Practical application

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1. Introduction

In recent years, MOOC (Massive Open Online Courses) has gradually become an important teaching mode in higher education with its advantages of openness and resourcefulness. The popularity of MOOC in higher education around the world promotes the digitalization process of education, providing flexible learning paths and extensive resource sharing for various disciplines. As an important part of music education in university, piano courses have ushered in the opportunity of teaching mode innovation in the MOOC environment. Compared with the traditional mode, the MOOC-based hybrid teaching mode not only broadens the learning space of the course, but also enhances the possibility of students' independent learning, and effectively stimulates learning interest and participation through the combination of online and offline. In this context, this paper aims to study the MOOC-supported blended teaching mode of piano in universities and puts forward reasonable

innovative strategies to optimize online resources and classroom interactions by analyzing the advantages of MOOC and the needs of piano teaching. This paper discusses teaching design, resource allocation, and practice paths to enhance the learning effect of piano teaching and provide practical theoretical basis and practice methods for music education in university.

2. Overview of MOOC and blended teaching of college piano

2.1. Concept and development of MOOC

MOOC is a form of online course that has emerged along with the popularity of the Internet and the development of digital teaching resources. The core features of MOOC are openness, sharing, and flexibility, which enable learners around the globe to access and learn from high-quality educational resources freely. Coursera, edX, Udacity, and other well-known platforms, promote the sharing of educational resources worldwide and cover a wide range of subject areas through a wide range of course content to meet the needs of different learners^[1].

2.2. Current situation and challenges of piano teaching in tertiary institutions

Piano courses play an important role in music education in university, both as one of the core courses for music majors and as a way for non-majors to get in touch with the fundamentals of music. However, traditional piano teaching has certain limitations regarding resource allocation, teaching mode and coverage. In particular, with limited teacher resources, traditional classes are difficult to meet the needs of a wide range of students. In addition, due to the high requirements of piano lessons in a practice environment and teaching feedback, one-on-one teaching, though guaranteed to be effective, faces challenges in terms of large-scale popularization. Under the current trend of digital and networked education, the need for piano teaching reformation in universities has become more prominent. MOOC provides an opportunity for the reform of piano courses, and through the combination of online and offline, it can overcome the limitations of space and time, provide diversified teaching resources and flexible learning arrangements, and bring new possibilities for traditional teaching^[2].

2.3. Application of MOOC in blended piano teaching and learning

Through the MOOC platform, teachers can make use of a large number of teaching videos, music scores and exercise resources to grade the teaching content to meet the learning needs of students of different levels. At the same time, the data analysis function of the MOOC platform helps teachers understand the learning progress and mastery of students, and then adjust the teaching content in the classroom. This MOOC-based hybrid piano teaching model not only has significant advantages in resource sharing, teaching efficiency and learning flexibility but also stimulates students' interest in active learning and exploration.

3. Design of MOOC-based blended piano teaching mode

3.1. Online learning: Modular course design

The MOOC platform provides a modular curriculum design for piano teaching, covering theoretical knowledge, basic fingering and practice repertoire. Courses are usually divided into three levels: beginner, intermediate, and advanced, and each level contains several learning modules, such as basic music theory, technique training and classical repertoire analysis. Students are free to choose modules according to their own learning needs and complete the course at their own pace. This modular design makes learning more flexible and at the same time

meets the needs of students at different learning levels ^[3].

3.2. Offline practice: Interaction and skills reinforcement

After completing the theoretical studies online, the offline class focuses on practical training and interactive communication. Teachers help students solve difficult problems in online learning through personalized guidance, such as correcting fingerings or handling details in playing. The class can also be designed for group practice or performance demonstration so that students can improve their skills through learning from each other. In addition, teachers can help students understand the connotation of the musical works more deeply through performance demonstration and emotional expression explanation, to organically combine theory and practice ^[4].

3.3. Feedback assessment: Data-driven optimization of teaching and learning

The data analysis function of the MOOC platform provides accurate learning feedback for blended piano teaching. Teachers can obtain data such as students' course viewing records, practice completion rates and quiz scores through the platform to understand students' learning progress and weaknesses. Combined with these data, teachers can provide targeted guidance in offline classes and adjust the subsequent teaching content. At the same time, through the comprehensive evaluation of online quizzes and offline classroom performance, students can identify their learning effectiveness and direction of improvement to further enhance their learning efficiency.

4. Innovative strategies for piano teaching in university with MOOC support

4.1. Scientific orientation of teaching objectives

Teaching objectives are the basis for designing an efficient teaching mode. The MOOC-based hybrid piano teaching mode emphasizes hierarchical course objectives and assessment of learning outcomes at different stages to meet the needs of students at different levels and promote their gradual improvement. In terms of course objectives, MOOC piano courses are divided into (1) the basic course focuses on music reading, basic fingering and a sense of rhythm; (2) the intermediate course focuses on mastering techniques and playing complete repertoire; and (3) the advanced course covers the performance of complex pieces and the deepening of musical expression skills. This hierarchical design allows students to choose the course content flexibly according to their learning needs, and teachers can also provide personalized guidance based on students' learning progress and skill mastery.

4.2. Personalized teaching and feedback mechanisms

With MOOC support, personalized teaching becomes possible. With the platform's learning data and interactive functions, teachers can keep abreast of students' learning progress and provide personalized learning support to students through real-time feedback. In terms of assessment of learning outcomes, MOOC platforms help students assess their learning effectiveness by setting practice tracks or stage-by-stage quizzes. For example, completing the basic fingering exercises or playing a short piece of music can be used as the results of the learning stage, and by gradually achieving these small goals, students can not only clearly see their progress, but also continue to maintain the enthusiasm and motivation for learning ^[5].

4.3. Teaching methods that enhance interactivity

Through the organic combination of online discussion and offline classroom, students can share their learning

experience and ask questions in the discussion forum, while teachers will provide targeted explanations and demonstrations in the classroom based on students' feedback to help students solve practical problems. At the same time, the design of actual performance projects and practical tasks, such as the final recital or group cooperation exercises, allow students to apply the theory and skills learned online to practice and enhance the fun and practicality of learning ^[6]. In addition, the teacher's role in this model changes from a knowledge transmitter to a learning guide, helping students to understand the learning content in depth through classroom interaction and feedback, and stimulating their interest in learning and independent exploration ability. These interactive teaching methods give full play to the advantages of MOOC and provide a more efficient teaching mode for piano courses.

5. MOOC-based practical application of blended piano teaching in university

5.1. Classroom implementation strategies

MOOC-supported blended teaching combines online learning with offline classroom interaction to form an efficient and flexible teaching process. In the online pre-study session, students learn the basics of the piano course through the MOOC platform, including music theory, basic finger technique and rhythm training. The micro-lesson videos, exercise assessments, and lecture resources provided by the platform help students master the core content, laying a solid foundation for in-depth classroom interaction. This approach allows students to be fully prepared, while teachers can more efficiently focus on solving problems encountered by students during self-study in the classroom. The offline classroom practice phase focuses on interaction and skill application. Teachers provide group guidance or stage-by-stage teaching based on students' online learning performance, combining live demonstrations, group discussions, and performance exercises to help students better understand and apply what they have learned in practice. For example, through simulation exercises and instant feedback, students can quickly improve their playing skills. The instant feedback session makes use of the learning data of the MOOC platform, which enables teachers to grasp students' learning progress in real-time, such as video viewing, practice completion rate and quiz scores. In the classroom, the teacher adjusts the teaching content according to the data analysis to ensure that each student can achieve the learning objectives. This process achieves the efficient use of teaching resources and the precise improvement of teaching quality and provides scientific support for the blended teaching of piano courses ^[7].

5.2. Practical case studies

Evaluation and feedback are an important part of testing the effectiveness of the MOOC-supported piano blended teaching mode. The evaluation is mainly carried out through learning participation, academic performance, student feedback, and other dimensions, to comprehensively consider the effectiveness of the teaching mode and put forward optimization suggestions. Evaluation and feedback are an important part of the MOOC-supported piano blended teaching model, which mainly assesses students' learning effectiveness through three types of indicators: online performance, classroom performance, and final assessment. The data tracking function of the MOOC platform, such as video viewing time, practice completion rate, and quiz scores, provides teachers with accurate feedback on their learning, which can help them to adjust the content of the teaching and provide counseling to the student's weaknesses, while at the same time. It also encourages high-performing students to challenge themselves to higher levels of the program. In addition, feedback on students' learning experiences is collected through online surveys and classroom discussions, which allow teachers to optimize course design and

resource allocation to ensure that students improve their skills in an appropriate environment. This evaluation and feedback mechanism effectively enhances the relevance and efficiency of teaching and learning.

6. Advantages and challenges of blended MOOC piano instruction

6.1. Key benefits of blended MOOC piano instruction

The introduction of the MOOC platform opens up a brand-new teaching pathway for piano courses in universities, bringing advantages that are difficult to be realized by traditional teaching modes. The platform brings together diversified course resources, such as technical exercises, music theory knowledge and demonstration videos, and students can freely choose their learning content according to their interests and needs, which provides a wider range of learning opportunities for non-piano students. The flexibility of the online course allows students to organize their learning at their pace, and the modular design helps them to master skills gradually, while repeated viewing and practicing of the videos further consolidates their knowledge. The MOOC's discussion forums and online quizzes enhance the interactivity of the teaching and learning process, allowing students to ask questions and communicate with the teacher and their classmates after they have completed the course online, and the teacher can provide targeted guidance based on the performance of the quizzes in class. Teachers can also provide targeted guidance based on quiz performance in the classroom. The platform's learning data analysis function also supports teachers in understanding students' learning progress, enabling them to adjust the teaching content and provide individual counseling to students in need. This model optimizes the use of resources and enhances the teaching effectiveness of the piano course^[8].

6.2. Challenges of blended piano teaching in practice

Although the MOOC-supported blended piano teaching model has demonstrated significant advantages, it still faces a series of challenges in its practical application, including insufficient student self-discipline, insufficient platform resource construction, and limitations of the teaching evaluation mechanism. The MOOC model relies on the independent learning ability of the students, and students with poor self-discipline often have difficulties in completing the course content on time, which may lead to poor learning results and even an inability to keep up with the progress of the offline classroom. This phenomenon affects the overall quality of teaching and imposes additional monitoring and motivation requirements on teachers. In addition, the quality of piano course resources on MOOC platforms varies, and the difficulty level and interactive design of the courses are insufficient to meet the learning needs of different students. It is difficult to convey complex skills by video teaching alone, resulting in limited depth of teaching effect. At the same time, the traditional teaching evaluation makes it difficult to fully reflect the learning outcomes of students, and the existing evaluation mostly focuses on the final examination, ignoring students' daily learning behaviors and classroom participation. Although MOOC platforms provide rich learning data, ways to integrate these data to build a comprehensive and scientific evaluation system is still an urgent problem to be solved at present. In response to these challenges, it is necessary to explore more effective incentive mechanisms, optimize the design of platform resources, and develop a multi-dimensional evaluation system adapted to the blended teaching mode, to further enhance the overall effectiveness of piano teaching under the support of MOOC.

6.3. Recommendations to address challenges

To address the practical challenges in the MOOC-supported blended piano teaching model, several

improvements can be made. Through the introduction of incentives, such as setting up learning rewards or extra points, students' learning motivation and self-discipline can be enhanced. At the same time, universities can cooperate with MOOC platforms to develop high-quality teaching resources, organize professional teachers to record demonstration courses and provide hierarchical content to meet the needs of different students. Using data analysis technology, personalized content is recommended according to students' learning progress, further optimizing the effect of resource use. In terms of teaching evaluation, the establishment of a multi-dimensional evaluation system combining online learning data, classroom performance and final grades helps to comprehensively assess the learning effectiveness of students and help them identify deficiencies through regular feedback. In addition, the interaction between online and offline is strengthened, and the online learning content is consolidated through online Q&A, discussion and classroom practice sessions. These measures can enhance the overall quality and efficiency of MOOC-supported piano teaching at different levels.

7. Conclusion

This study discusses the innovative strategy and practical path of MOOC platforms in blended piano teaching in universities and analyzes the advantages of this mode in resource sharing, flexible learning, and personalized teaching. It is found that MOOC-supported blended teaching significantly improves students' learning autonomy and classroom interaction effects, and brings new development space for piano teaching. At the same time, the model also faces the challenges of student self-discipline, resource construction, and evaluation mechanisms in the process of application. In the future, the effect of blended teaching can be further improved by optimizing teaching resources, perfecting the evaluation system, and strengthening personalized feedback. This study provides a practical basis and innovative ideas for the digital development of piano courses in university.

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