International Journal of Education and Humanities
ISSN: 2770-6702 | Vol. 25, No. 2, 2026

Construction and Practice Research on the Piano Improvisational Accompaniment Teaching Resource Library from the Perspective of Digital Empowerment

Yanru Wang

Jining Normal University, Ulanqab, China

Abstract: Against the background of the comprehensive advancement of educational digital transformation, traditional piano improvisational accompaniment teaching faces practical problems such as scattered resources, lagging content updates, monotonous training forms, and poor connection between in-class and out-of-class learning. It is difficult for this model to meet the quality-improvement requirements for cultivating music professionals in higher education in the new era. To address the pain points of insufficient teaching resources, low teaching efficiency, and slow improvement of students' practical abilities in improvisational accompaniment, this study relies on digital technology to construct a piano improvisational accompaniment teaching material resource library system. It integrates multiple teaching contents, including score examples, audio demonstrations, micro-lesson videos, and tiered training question banks, and builds a systematic, intelligent, and dynamic online teaching resource platform. This paper conducts research from the aspects of research background, theoretical foundation, system architecture, resource system construction, teaching practice paths, and application effects, exploring an effective path for digital technology to empower the reform of piano improvisational accompaniment teaching. Practice shows that the digital teaching resource library can effectively enrich the dimensions of classroom teaching, break the temporal and spatial limitations of traditional classrooms, help students carry out personalized and regular independent training, and significantly improve their improvisational arrangement, auditory thinking, and practical performance abilities. It provides practical reference for the digital and high-quality reform of piano improvisational accompaniment courses in normal universities.

Keywords: Digital Empowerment, Piano Improvisational Accompaniment, Teaching Resource Library, Informatized Teaching, Music Teaching Reform.

1. Introduction

1.1. Research Background

With the continuous advancement of the national educational digitalization strategy, aesthetic education teaching and music major teaching in higher education have entered a new stage of comprehensive quality improvement and upgrading. The Opinions of the Ministry of Education on Comprehensively Strengthening and Improving School Aesthetic Education in the New Era clearly proposes that the digital construction of aesthetic education teaching should be promoted, the supply of high-quality aesthetic education resources should be enriched, teaching models should be innovated, and the effectiveness of aesthetic education should be improved [1]. As a core skills course for musicology and music performance majors in higher education institutions, piano improvisational accompaniment is both theoretical, practical, and creative. It is a key course for cultivating students' comprehensive musical literacy, classroom teaching ability, and artistic creation ability.

For a long time, traditional improvisational accompaniment teaching has generally relied on teachers' paper textbooks and live classroom demonstrations. Teaching resources are fragmented and highly homogenized, lacking a systematic, hierarchical, and up-to-date resource system. Classroom teaching time is limited, and students lack standardized demonstration materials, tiered practice content, and autonomous learning channels after class. As a result, problems are common: "students understand in class but cannot practice after class, improvisational arrangement follows fixed patterns, and practical ability is weak." The traditional teaching model can no longer meet the training needs of application-oriented and innovative music talents in the new era.

In this context, relying on digital technology to build a professional piano improvisational accompaniment teaching material resource library and to achieve intensive teaching resources, visualized teaching processes, and regular independent training has become an inevitable choice for promoting curriculum teaching reform and improving talent cultivation quality. The popularization of digital technology has created technical conditions for the resource reconstruction of music skills courses. How to combine digital resources with the skill training rules of improvisational accompaniment has become a practical topic worthy of in-depth discussion in the field of music education in normal universities.

1.2. Research Significance

At the theoretical level, based on the concept of digital empowerment education and combined with blended teaching and constructivist learning theory, this study constructs a digital resource system suitable for the characteristics of piano improvisational accompaniment courses. It enriches the research content of music education digitalization and provides theoretical support for the informatization reform of art skills courses [3].

At the practical level, the teaching material resource library system can effectively integrate various high-quality teaching resources and build a complete teaching loop consisting of pre-class preview, in-class practical training, and post-class consolidation. It solves problems such as insufficient teaching

resources, monotonous training, and delayed feedback in traditional teaching, helps teachers optimize teaching design and improve classroom efficiency, and helps students achieve tiered and progressive skill improvement, comprehensively strengthening their core improvisational accompaniment abilities. For students in normal education programs, improvisational accompaniment ability is directly related to the quality of their future music classroom teaching in primary and secondary schools. The construction of the resource library can also indirectly serve the cultivation of teaching abilities for basic music education.

1.3. Research Status

At present, domestic research on piano improvisational accompaniment teaching mostly focuses on teaching methods, classroom models, and chord arrangement techniques. Systematic research on the construction of digital resource library systems and their deep integration with courses is relatively scarce [2]. Most college improvisational accompaniment courses still use traditional resource models, with slow resource updates, poor sharing, and low intelligence, making it difficult to support personalized teaching. With the development of educational digitalization, some institutions have begun to explore online resource construction, but problems generally remain, such as chaotic resource classification, weak pertinence, and disconnection from classroom teaching [3]. Many existing music resource platforms lean toward appreciation-oriented content. Complete sets of resources specifically for improvisational accompaniment skill training are relatively scarce and lack difficulty gradient design, making it difficult for them to directly serve daily course teaching. Therefore, building a professional, standardized, and systematic improvisational accompaniment teaching resource library has strong research value and practical necessity.

1.4. Research Methods

This study mainly adopts literature research, system analysis, teaching practice, and summary induction. Through reviewing literature related to aesthetic education digitalization and improvisational accompaniment teaching, it lays a theoretical foundation; combined with course characteristics, it designs the overall architecture and functional modules of the resource library; through classroom practice, it tests the application effect; and finally summarizes the effective implementation path of digital empowerment teaching. This study takes two classes of music majors at the author's institution as practice subjects and carries out a one-semester comparative teaching practice, collecting student practice feedback, classroom performance, and phased assessment data as the basis for practice analysis.

2. Related Concepts and Theoretical Foundations

2.1. Definition of Core Concepts

Digital empowerment is a new educational development model supported by big data, informatization, and Internet technology. It optimizes and reconstructs traditional teaching models, teaching resources, and teaching processes to achieve teaching quality improvement and efficiency enhancement. Piano improvisational accompaniment is a comprehensive music skill that relies on music theory, harmony, and musical form knowledge, combined with auditory perception and improvisational creation ability, to achieve real-time accompaniment and artistic interpretation. A teaching resource library is a digital sharing platform that integrates various teaching materials, training content, and demonstration resources. It is an important carrier supporting blended teaching [4].

2.2. Theoretical Foundation

Constructivist learning theory emphasizes that learning is a process in which students actively construct knowledge and accumulate skills. Digital resources can provide students with rich learning situations and conditions for autonomous inquiry. Blended teaching theory advocates integrating online autonomous learning with offline classroom practical training to achieve complementary advantages. This fits the characteristics of improvisational accompaniment skill training, which requires repeated practice and continuous consolidation [4]. Fragmented learning theory provides theoretical support for students to use spare time to carry out tiered training and fill gaps. Piano improvisational accompaniment is a skill-acquisition course. Skill improvement cannot rely solely on limited classroom hours and requires a large amount of repeated practice after class. These three theories together provide the academic basis for the construction and application of this resource library.

2.3. Existing Problems in Traditional Teaching

First, teaching resources are single and fixed, textbook content lags behind, and accompaniment materials for popular pieces and different styles are scarce. Second, the training model is homogenized and cannot adapt to the personalized needs of students with different foundations; the same set of practice content is difficult to accommodate both students with zero foundation and students with certain playing skills. Third, after-class practice lacks standard demonstrations, making self-correction difficult for students. Many students make rhythm or chord errors while playing but cannot detect them in time. Fourth, teaching extension is insufficient, in-class and out-of-class teaching are disconnected, and skill improvement is slow [2]. At the same time, in the context of large-class teaching, it is difficult for teachers to attend to every student's practice details, and there is a lack of effective process-oriented learning carriers after class, further amplifying the above teaching contradictions.

3. System Design of the Piano Improvisational Accompaniment Teaching Material Resource Library

3.1. Construction Goals

The system takes serving course teaching, facilitating skill improvement, and promoting teaching digitalization reform as its core goals. It aims to build an improvisational accompaniment resource system with clear classification, rich content, timely updates, and convenient use, realizing four major functions: resource sharing, tiered teaching, independent training, and teaching research support. It not only serves students' course learning but can also provide material reference for frontline music teachers' independent further study [3].

3.2. Design Principles

Adhere to the principle of professionalism, aligning with the teaching syllabus and skill training objectives of

improvisational accompaniment courses; adhere to the principle of systematicness, building a resource system that progresses from shallow to deep and is tiered and progressive; adhere to the principle of practicality, considering both classroom teaching and after-class practice needs; and adhere to the principle of dynamism, achieving continuous resource updating and iterative optimization.

3.3. Overall System Architecture

The system is divided overall into a front-end learning terminal and a back-end management terminal, including six major modules: resource display, classified retrieval, online learning, resource updating, data statistics, and back-end management. Teachers can upload, review, and update teaching resources, while students can retrieve, watch online, and download learning materials as needed, achieving efficient resource utilization.

3.4. Construction of the Core Resource System

First, the score example resource library, which collects accompaniment score examples of children's songs, popular songs, red songs, and art songs at beginner, intermediate, and advanced difficulty levels. Second, the audio demonstration library, which provides standardized performance demonstration audio for students to learn by comparison. Third, the micro-lesson teaching library, which produces special micro-lessons on key and difficult points such as chord arrangement, rhythm pattern application, modulation techniques, and prelude and coda creation. Fourth, the tiered question bank, which sets basic training, improvement training, and comprehensive creation training modules to adapt to students with different learning conditions. Links and jumps are established among various resources. When students open the score example of a certain piece, they can quickly access the corresponding demonstration audio and supporting explanatory micro-lessons, thus connecting the learning links among materials.

4. Practical Application of the Resource Library in Teaching

4.1. Pre-class Preview Stage

Teachers rely on the resource library to push pre-class micro-lessons, basic score examples, and rhythm training materials, guiding students to master basic knowledge and simple playing skills in advance, reducing classroom learning difficulty and improving classroom teaching efficiency [4]. Students complete simple listening, discrimination, and score-reading preview tasks before class. Teachers can briefly check preview completion through the platform, making it convenient to adjust the focus of formal classroom teaching.

4.2. In-class Practical Training Stage

In classroom teaching, teachers use the demonstration content in the resource library to carry out comparative teaching. In response to students' playing problems, they can retrieve standard demonstrations in real time, explain arrangement logic and playing key points, and achieve simultaneous theoretical explanation, demonstration observation, and practical training, improving classroom practical training effects. In class, students' live performances can be played comparatively with platform demonstration audio, intuitively presenting differences in arrangement ideas, inspiring students to carry out diverse creative arrangements, and breaking fixed patterns of accompaniment thinking [2].

4.3. Post-class Consolidation Stage

According to their own weak points, students independently choose tiered resources for regular practice, correct playing deviations by comparing with demonstration audio, and strengthen creative arrangement ability through special question banks, achieving personalized gap filling and effectively solving the problems of having no resources and not knowing how to practice after class. Students can upload recordings of their own playing, making it convenient for teachers to remotely view assignments after class and compensating for the feedback gap caused by insufficient classroom time.

5. Practical Effects and Problem Optimization

5.1. Application Effects

The digital resource library has effectively broadened the boundaries of teaching resources, enriched classroom teaching forms, and broken the temporal and spatial limitations of traditional teaching. Students' enthusiasm for autonomous learning has significantly increased, improvisational arrangement thinking has become more flexible, and playing standardization and piece adaptability have noticeably improved. Teachers' lesson preparation efficiency has greatly improved, teaching design has become more diverse and refined, and course teaching quality has achieved steady improvement, effectively promoting the digital transformation of improvisational accompaniment course teaching [3]. After one semester of teaching practice, students in the experimental class generally outperformed those in the control class in assessment indicators such as chord arrangement completeness and grasp of piece style.

5.2. Existing Problems

The update speed of some resources needs to be improved, and the personalized intelligent push function needs to be perfected. Some students lack self-discipline in autonomous learning, and resource utilization efficiency varies. Online learning supervision and feedback mechanisms need to be further improved. At present, the platform focuses more on material supply and lacks intelligent assessment functions. It cannot automatically identify chord and rhythm errors in students' playing audio and relies heavily on manual teacher evaluation.

5.3. Optimization Strategies

Establish a regular resource update mechanism and regularly supplement teaching resources on new pieces and cutting-edge creative arrangement techniques; improve intelligent classification and precise push functions to achieve teaching according to aptitude; establish mechanisms for online learning check-ins, assignment feedback, and learning status statistics to strengthen process supervision and further improve the educational effectiveness of the resource library. In the future, when conditions mature, exploration can be made to introduce audio recognition technology to initially realize auxiliary assessment of practice content and reduce teachers' assignment grading pressure [4].

6. Conclusion and Outlook

The piano improvisational accompaniment teaching material resource library system constructed in this study precisely addresses the pain points of insufficient resources, monotonous models, and inadequate training in traditional improvisational accompaniment teaching. Relying on digital empowerment, it reconstructs the course teaching system and forms a blended teaching model integrating pre-class, in-class, and post-class learning. The application of the system effectively improves classroom teaching quality and students' practical improvisational creation abilities, providing a feasible path for the digital reform of music skills courses.

In the future, system functions will continue to be optimized, resource content enriched, and learning status data analysis functions improved. The deep integration of digital resources with classroom teaching, skill assessment, and ability evaluation will be promoted, and the teaching reform of piano improvisational accompaniment courses will be continuously deepened, providing solid support for cultivating high-quality application-oriented music education talents. At the same time, it is hoped that the resource construction ideas can provide some reference for the digital transformation of music skills courses in similar local normal universities.

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