Intelligent Information Teaching Method and Its Influence on Instrumental Music Teaching

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ABSTRACT

As cloud computing, big data, and AI advance, teachers increasingly leverage "cloud" technology for flexible and intelligent teaching. The "cloud classroom" is a growing trend, especially for instrumental music education. This paper examines the pros and cons of cloud-based instrumental music teaching, exploring how to adapt methods to local conditions to enhance remote teaching quality. It draws on past experiences to innovate teaching models for practical courses like acoustic instrument music in the "Internet+" era, guiding reforms in higher education music programs. The paper also reviews the current state, issues, and solutions in instrumental music teaching across diverse educational settings, offering insights for future reforms and serving as a platform for dialogue between the instrument industry and music education. Integrating AI into music education marks a significant step forward in teaching innovation.

KEYWORDS

Intelligent Information, Intelligent Teaching and Instrumental Music Teaching, Distance Learning, Course Teaching

INTRODUCTION

As an indispensable part of life, music reflects the real-life emotions of the masses. The demand for music education has also increased significantly with the improvement of the quality of life. The rapid development of science and technology has introduced many new elements into music. Artificial intelligence (AI) technology has emerged at the right time, bringing rapid changes to the form and content of music education in recent years. This paper examines the development of this industry in China and the advantages and disadvantages of AI in music education. Since the beginning of the new century, the fields of science, technology, and education have become increasingly integrated, and many foresee that technological advancements may present a rare opportunity to drive a complete transformation in education (Thambu et al., 2021).

In recent years, online education technology has continuously evolved, breaking the traditional constraints of time and space in education and proving highly valuable during the challenges of the pandemic (Degrave, 2019). AI technology can enhance education, reshape learning environments, optimize the use of educational resources, and enable personalized, diversified education at scale. As such, it plays a crucial role in the reconstruction of the educational ecosystem (Fang, 2021).

The current large-scale shift to online teaching is unprecedented and has transformed the educational landscape (Asmus, 2021). We should proactively adapt to these changes and strengthen the development of online music education curricula. In fact, education has already become a focal point for forward-thinking individuals (Lehmann et al., 2019). AI technology has been increasingly integrated into music education and is now considered the future of the field. The impact of AI advancements in music education cannot be underestimated. This new teaching approach has significantly influenced traditional teaching concepts and models, fostering a diversified, multi-level, and multi-context development path. It has become a key trend in the integration of information technology and education (Cui & Zhang, 2021).

Biasutti and Concina's (2018) article explores applications of AI in instrumental music education, highlighting how AI has disrupted traditional teaching models. In particular, the use of computer music systems and advanced music software has significantly improved the quality of instrumental music instruction and expanded teaching models, reflecting the author's recognition of AI's role in instrumental music education (Biasutti & Concina, 2018).

The concept of *AI + education* has garnered significant attention from scholars in our country, demonstrating that self-organized learning—built on a learner-centered approach—enables individuals to construct their own knowledge systems and develop autonomous learning skills to meet the demands of future developments (Guhn et al., 2020). With the support of powerful intelligent learning platforms emerging from the integration of AI + education, self-organized learning can be further enhanced (Finlayson et al., 2021).

The combination of AI and music education has both advantages and disadvantages. One key advantage is its ability to transform the traditional educational model and learning environment.

To illustrate the practical applications of AI in music education, consider the example of Flowkey. This application uses AI algorithms to analyze students' playing patterns and provide personalized feedback. Through machine learning techniques, the Flowkey system can detect errors in rhythm, intonation, and finger movements, generating customized suggestions for improvement. This not only enhances students' learning experiences but also improves their learning efficiency.

Another example is AI's role in music composition education. By leveraging natural language processing and deep learning models, students can input their musical ideas intuitively, and the system assists them in generating musical scores while also providing creative inspiration. These real-world applications demonstrate AI's potential to transform music education and offer valuable insights for future research and development in this field.

Traditional music education is typically confined to the classroom, where instruction is relatively simple. Teachers primarily deliver theoretical knowledge, and students follow the teacher's pace and rhythm. This traditional model is constrained by objective factors such as time and space, often resulting in limited student engagement and low learning efficiency, which hinders the broader promotion and development of music education.

With the rise of AI, music education in the digital era has evolved further. As AI becomes more deeply integrated into society, advanced AI systems can not only handle basic teaching tasks but also support various post-class learning stages, accommodate students' diverse musical needs at different levels, and extend education beyond the classroom, embedding it more deeply into society.

The primary aim of this study is to comprehensively analyze the current state of music education in the context of AI integration, identify existing problems and challenges, and explore potential solutions and future development directions. Specifically, we examine the effects of intelligent management systems in music education, the impact of mobile intelligent terminals on teaching, and AI's role in enhancing teaching resources and methods. Through this research, we aim to provide valuable insights for fostering innovation and advancing music education.

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