

Study of Intelligent Innovation Path for Distance Learning of Piano Performance Majors from the Perspective of Big Data

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Abstract: As a cutting-edge technology in contemporary times, big data technology has brought new vitality into the field of distance learning of the piano performance. Its enormous potential and value are reflected in the optimization and improvement of existing distance learning models. Through big data technology, the piano performance education can achieve personalized learning and accurately connect with the unique needs and learning characteristics of different students. In addition, in the piano performance education model, teachers can conduct targeted teaching based on the actual situation of students, making teaching differentiation be possible and improving teaching effectiveness. The big data technology also helps to improve the quality of the teaching team and enhance the teaching level and professional competence of teachers. To ensure that the distance learning of the piano performance truly enters the era of intelligence, it is necessary to actively cultivate the big data awareness of relevant personnel, build a diversified and professional teaching team, and build an intelligent learning platform.

Keywords: Big Data; Piano Performance Major; Distance Learning; Intelligence; Innovation Path

1. Introduction

Learning, as a sustained driving force for the development of human society, has a profound impact on both individuals and groups. In the new century, with the continuous progress of society, the importance of learning has become increasingly prominent and has been endowed with richer connotations by the times. The proposal of the four focus of learning, namely learning to seek

knowledge, learning to do things, learning to coexist, and learning to be a good person, especially the primary position of learning to seek knowledge not only highlights the core value of learning ability in the new era, but also further demonstrates the significant significance of distance learning in the era. Distance learning has been closely integrated with modern technology since its inception. From the early form of correspondence education to the current peak of online education, distance learning in China has achieved remarkable achievements in multiple disciplines and levels. These achievements not only vividly reflect the rapid development of China's education industry, but also demonstrate the enormous potential and irreplaceable role of distance education in promoting educational reform, enhancing educational equity, and improving educational quality.

2. The benefits of Big Data in Distance Learning

2.1 Beneficial for Personalized Learning

The application of big data analysis technology in distance learning has injected new vitality into personalized learning. In distance learning, learners exhibit significant differences in multiple dimensions, including learning level, methods, time, and content choices. Traditional distance learning methods, although they are flexible in time and space, they often exhibit a high degree of uniformity in teaching content and methods, which is in stark contrast to the individual differences and diverse needs of learners. The introduction of big data analysis technology provides implementation entities with more in-depth and comprehensive insights into learner data, so that teachers can accurately understand learners' learning habits, preferences, and needs, and then formulate personalized

learning plans for learners. This personalization is not only reflected in the customization of course content, but also runs through teaching methods and resource selection. Therefore, big data analysis technology not only brings higher teaching efficiency and results to distance learning, but also makes learning more humane and closer to the actual needs of learners. This is an important symbol of educational progress and a key direction for future educational development.

2.2 Beneficial for Differentiated Teaching

The application of big data analysis in distance learning provides strong support for teaching differentiation, enabling in-depth exploration of multi-dimensional data of distance learners, including online learning time, login frequency, and real-time feedback on teaching content and methods, thereby providing comprehensive and accurate learner profiles for educational implementation entities. Based on these valuable data insights, teachers can accurately grasp the personalized needs of learners and flexibly implement classified teaching strategies by using advanced tools such as mobile Apps. Such learner-centered and differentiated teaching method significantly improves teaching effectiveness, so that every learner can receive high-quality teaching services that meet their own needs. It not only demonstrates the humanization and refinement of education, but also injects new vitality into the development of distance learning.

2.3 Beneficial for the high-quality development of the teaching team

The application of big data technology in distance learning will undoubtedly promote the development of the teaching team towards higher levels of quality and intelligence. Although traditional distance learning has made some progress in the building of teaching team, the introduction of big data technology will bring revolutionary changes to it. With the help of advanced processing methods such as cloud technology, it is possible to efficiently match teachers for distance learning registered on the network with specific teaching needs. This measure not only helps to form a larger and more professional teaching team, but also achieves integrated management of teacher resources, making the entire teaching team more intelligent. Therefore, the application of

big data technology will significantly improve the educational quality and teaching level of distance learning, injecting new impetus into the continuous progress and development of the entire industry.

3. Implementation of Intelligent Distance Learning for Piano Performance Majors from the Perspective of Big Data

3.1 Enhancing the Awareness of Big Data of the Teaching Team

Long term skill training often makes piano teachers become highly skilled practitioners, but it may also lead to a lack of theoretical depth. This trend is reflected in piano learning worldwide, with experienced teachers accounting for a large proportion and research-oriented teachers being relatively few. In this context, many teachers may overly focus on improving their skills, but neglect systematic learning of theoretical knowledge. As an emerging interdisciplinary technology, big data technology has enormous potential for application in the field of education, especially in distance learning. However, due to significant cognitive differences between big data technology and the traditional field of piano performance art, many teachers may be unfamiliar with the cognition and even lack the necessary technical analysis ability. To fully tap into the potential of big data technology in distance learning of Piano Performance majors, teachers must actively enhance their awareness and technical literacy of big data, deeply understand the basic concepts and principles of big data, and master relevant technical analysis tools. Through such efforts, teachers can not only enhance their personal teaching abilities, but also provide students with more personalized and efficient learning experiences, thereby promoting the comprehensive progress of piano performance learning.

3.2 Creating a Diverse Teaching Team for Distance Learning of Piano Performance Majors

The phrase "there is order in learning, and specialization in skills" accurately points out the uniqueness and value of knowledge in professional fields. In the process of promoting the intelligence of distance learning of Piano Performance majors, it is necessary for the teaching team not only to have awareness of

big data, but also to build a diversified and interdisciplinary teacher team. This team should be composed of professional teachers who are knowledgeable in educational intelligence technology, distance learning methods, and piano performance art. To truly integrate the potential of big data technology into distance learning of Piano Performance majors, it is necessary to gather an elite team composed of teaching personnel from three fields to jointly form a diversified teaching team, so that the team will fully utilize the professional advantages of each member and form a strong collaborative effect, so as to promote the intelligent development of big data technology in distance learning of Piano Performance majors, improve educational effectiveness, and provide students with a richer and more personalized learning experience.

3.3 Building an Intelligent Platform for Distance Learning of Piano Performance Majors

3.3.1 Intelligent front-end processing

The essence of intelligent distance learning lies in building an efficient and interactive intelligent platform. Through drawing on the experience of the academic and educational communities in China, the construction of an intelligent platform for distance learning of Piano Performance majors should focus on the dual dimensions of front-end services and back-end management. This comprehensive intelligent architecture aims to lay a solid technical foundation for distance learners and provide excellent learning experiences.

At the front-end service level, cutting-edge intelligent technology should be integrated into platform design to catalyze deep interaction and emotional resonance among learners. For example, popular technologies such as smart piano software, smart piano classrooms, and speech recognition can be used to create an immersive learning environment for learners. Furthermore, to assist learners in objectively measuring their own learning progress and conditions, intelligent assessment technologies such as score recognition can also be integrated into the platform. The introduction of Internet of Things technology enables the complete transfer of traditional piano teaching scenarios to online environments, and enhances learners' sense of presence and realism. And this technology enables distance

learning instructors to provide real-time guidance and feedback on students' playing skills during specific time periods. It not only enhances learner engagement, but also ignites their enthusiasm for distance learning.

In the feedback stage, intelligent robots provide students with answers and guidance in the whole day, ensuring that learners can receive answers and assistance at any time. This intelligent front-end service design not only enhances the interactivity and convenience of the platform, but also lays a solid foundation for the high-quality implementation of distance learning of Piano Performance majors.

3.3.2 Intelligent backend operation design

Compared with traditional online distance learning, distance learning of Piano Performance based on big data demonstrates a higher level of intelligence in the backend operation design. On the basis of inheriting the advantages of traditional network backend management, it is necessary to actively integrate big data processing technology, deeply explore the multidimensional information of learners, and accurately depict their learning personality, abilities, and behavioral patterns. Multiple factors such as geography, culture, age, and psychology lead to significant differences in content preferences among distance learners in piano performance studies. For example, piano educators may focus more on the refinement of teaching theory, classical repertoire, and basic skills. However, piano performers, on the other hand, may be more inclined towards learning popular songs and improving their playing and rendering skills. These personalized needs can only be met through precise analysis of big data. If the backend operation management lacks intelligence, the implementation of personalized teaching measures will be severely constrained and even impossible to be achieved. Therefore, intelligent backend operation design can formulate teaching plans for each distance learner and significantly improves the pertinence and effectiveness of distance learning of Piano Performance. It not only highlights the profound value of big data technology in the field of education, but also points out the direction for the innovative development of distance learning of Piano Performance majors.

4. Conclusion

The diversified characteristics of education in the 21st century is significant, with distance learning being a part, and its educational methods and teaching content closely linked to the times. In this era, open music distance learning has been deeply embedded in China's education system, becoming the core standard for measuring the maturity of modern music development in China. The intervention of big data technology has brought unprecedented changes to distance learning of Piano Performance. It not only prompts educators to update their teaching concepts and concepts, but also plays a key role in improving teaching effectiveness and ensuring teaching quality. Therefore, we firmly believe that under the insight of big data, promoting the intelligent progress of distance learning of piano performance is an important way to achieve the noble concept of providing education that satisfies the people.

References

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