

Piano Enlightenment Education within Piaget's Theory of Children's Cognitive Development

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Abstract. Since the 1990s, the rapid development of the Internet promoted the daily life in China, especially the education system. The COVID-19 pandemic has presented challenges as well as opportunities for music education. Teachers and students need to explore new methods to address the situation. This study focuses on enlightenment piano teaching, especially young children. Based on Piaget's theory of cognitive development, several teaching methods for early childhood piano instruction will be proposed in this article to help more piano teachers understand the age characteristics of pre-school children and to better assist piano instruction. In offline piano lessons, teachers may start lessons with their fingers on the keyboard and text materials. In online piano lessons, teachers can utilize various types of media for teaching. In the near future, online education could prove to be more effective. This study aims to analyze the advantages and disadvantages, and provide effective guidelines for online piano education.

Keywords: piano education; online education; Piaget's theory.

1. Introduction

The enlightenment stage of piano lessons requires patience for both students and teachers. In one-to-one traditional music teaching, teachers and students have piano lessons in a same physical space. Since the online learning is becoming more and more popular nowadays, it is possible to have music lessons at home, regardless of the limitation of time or space. It would appear that distance learning has been much easier for learners to adopt, especially young children.

Jean Paul Piaget (1896-1980), a renowned Swiss psychologist. He was considered one of the most influential psychologists in contemporary education. Through extensive observation and documentation of children's behavior, Piaget provided a blueprint for the cognitive development of individuals from birth to adulthood. This theory is widely recognized as the most authoritative theory in 20th-century developmental psychology [1], and has had a significant impact on the evolution of Western psychology and educational reform. This paper will explore the advantages and challenges of online piano lessons for preschool children based on Piaget's cognitive development theory.

2. Contextualizing Online Piano Education

2.1. Definitions

Online piano learning uses platforms based on modern technology and mass media enable learners to select the piano courses that interested them, without time and space limitation [1]. Enlightenment piano teaching for children refers to receive piano lessons during the pre-school period. The systematic teaching and guidance in enlightenment piano education aim to cultivate young children's interest in music and enhance their musical abilities.

Piaget's cognitive development refers to the individual's cognitive understanding and problem-solving abilities during activities adapting to the environment since birth, which change with age. Piaget's special interest in cognitive development research stems from viewing children's cognitive development as a bridge between biology and epistemology. He believed that understanding the cognitive development of individual children could reveal the general principles of human cognition, thus constructing his entire theory of "constructivist epistemology" [2]. Piaget views cognitive development as the development of cognitive structures, differentiating stages of psychological

development based on cognitive structures. He divides cognitive development into four stages: sensorimotor stage (0-2years old), preoperational stage (2-7years old), concrete operations stage (7-11years old) and formal operations stage (11-15years old).

The "World Children's Literature Dictionary" defines preschool children as children who have not yet reached school age. In a broad sense, it refers to children from birth to adolescence, and in a narrow sense, it refers to children in their childhood. This article tends to focus on the study of piano teaching for pre-school children aged 4-6years old.

2.2. Online Piano Education in Post-COVID-19 Period

With the rapid development and renewal of Internet technology and mobile terminals, electronic networks have enriched our daily lives. People's lifestyles have gradually evolved from offline monorail activities to online and offline dual-track synchronization, entering the era of real-time and virtual networks. China's music education system in piano instruction is also keeping up with the times and entering the new era [2]. Nowadays, online courses have been developing in China for a considerable period. This article summarizes the current situation, outlines the advantages and disadvantages, and offers relevant solutions. Moving forward, we anticipate the enhanced progression of online courses to offer optimal support for educational instruction.

The COVID-19 pandemic has presented both opportunities and challenges for the piano education industry. The sudden onset of the pandemic has led to a rapid development of online piano education, with a proliferation of web-based courses. However, since the pandemic, people have gradually resumed in-person lessons, and the usage frequency of online piano apps has started to decline. The online piano instruction also has its own advantages. For young piano students in the foundational stages of their musical development, online piano lessons may be more suitable because of their age characteristic.

2.3. Research methods

This article utilizes literature review, interdisciplinary research, and empirical summary methods. First of all, through the use of the China National Knowledge Infrastructure (CNKI) database, a literature search was conducted on articles combining Piaget's cognitive development theory with piano teaching. A summary and integration of these articles was performed, extracting key content from both children's introductory piano teaching and child psychology to provide a theoretical foundation for this study.

Next, an interdisciplinary research approach was employed, using child psychology as the entry point to theoretically research and summarize the positive impacts of Piaget's theory on children's introductory piano teaching. Based on Piaget's cognitive development theory, some teaching methods for children just beginning piano instruction were proposed.

Finally, using the empirical summary method. Through observation and summary of personal piano teaching experiences, new ideas were put forward to address issues encountered in teaching, with the aim of achieving better online piano instruction.

3. Literature Review

3.1. Debates on Online Piano Education

In the research field of music pedagogy and education. There are debates on online piano education. Positive attitudes towards online teaching can be seen. Xu Hanchu and Li Nannan believe that facing the pros and cons of online piano teaching positively can promote the development of online piano teaching and gain acceptance from society [4]. Xing Jinglin has proposed countermeasures for online piano teaching in the context of "Internet +", such as improving the level of teachers, paying attention to interactive communication, and setting up accompanying mode [5]. While others suggested to integrate offline teaching. Han Xiao, using the textbook "Baye Basic Piano Course" as an example, summarized and reflected on the integrated online and offline teaching [6]. Chen Chunyan explored

how to make the advantages of the Internet efficiently in the era of "Internet +", and tried to innovate and reform the problems of piano teaching, so as to achieve more effective online piano teaching [7]. Discussions can also be found at the university level regarding online piano education. Kuang Yongsheng and Gao Qingqing, using the three periods before, during, and after the epidemic as the main point, analyzed the current situation of online piano teaching and proposed development suggestions for online piano courses in colleges and universities after the epidemic [8]. Pan Shasha, from the perspective of students, compared various online platforms, considered the collective class mode of piano playing in pre-school education majors, and summed up their experience in practice [9]. Ling Huiyang took the piano basic course of normal colleges as the research object, analyzed the drawbacks, and studied how to optimize and improve the piano basic course of normal colleges [10].

3.2. Online Piano Lessons for Pre-school Children

There are studies focus on the Feng Qianyun attempts to divide online piano education into four major teaching modes: music lessons, real-time teaching, short video and live class, game and intelligent piano and combines AHP to quantitatively analyze the improvement of different types of online courses on children's piano enlightenment education and give the teaching advice [11]. Li Hui takes the piano teaching practice of 3-6-year-old preschool children in China as the research object, and takes the tacit knowledge as the main point to explore the teaching. On this basis, it puts forward the teaching model of children [12].

3.3. The Piaget's theory in the Context of Piano Education

Most of the studies that combine Piaget's theory with piano teaching propose corresponding teaching methods for four age groups. There is relatively little research on the preoperational stage. Studies combining this theory with piano enlightenment education is also relatively lacking.

Bai Hao referenced Piaget's theory of cognitive development stages to compare piano teaching arrangements and adjusted his teaching methods and content [13]. Huang Yunru based on Piaget's theory of cognitive development, combined with the characteristics of children's musical learning in each stage of cognitive development, and put forward concrete measures to develop musical ability in each stage. Then the author demonstrated how to effectively develop children's musical talents and abilities in music teaching and summarized the inspiration [14]. Feng Yuan explained Piaget's theory and has found the combination of this theory and piano teaching and proposed corresponding teaching strategies [15]. Bai Lu applied the "Piaget cognitive development theory" to the piano enlightenment teaching, and summarized theoretical research and provides theoretical help and method guidance for children's confusion in piano learning. Based on the literature review above, he predominant focus of the articles is on the advancement of online courses within educational institutions [16]. These articles typically commence with an examination of online course frameworks and suggest various pedagogical approaches.

4. The Teaching Methods based on Piaget's Theory

4.1. Personified Teaching Language

For children in the pre-operational stage, image-based thinking is stronger than logical reasoning. In piano instruction, teachers can employ personified teaching language to present abstract concepts in a more concrete and vivid manner. This not only aids student comprehension but also stimulates their imagination. For example, as illustrated, a whole note can be likened to a complete watermelon, a half note to two halves of a watermelon, a quarter note to one watermelon slice, an eighth note to half a slice, and a sixteenth note to a quarter slice (see Fig.1). Utilizing familiar objects such as watermelons, cakes can help beginner students better grasp relevant musical concepts.

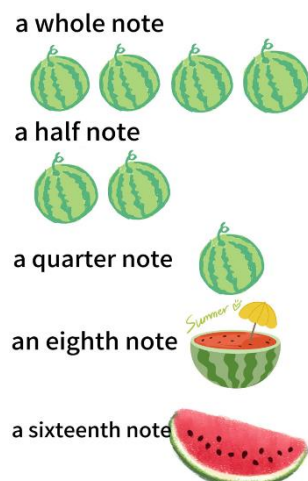


Fig. 1 Notes with personified teaching language

4.2. Perceiving Music

Children in the preoperational stage can associate the specific characteristics of objects with their cognitive structures, thereby gaining conceptual meaning, but new concepts still need to be understood through concrete sensory experiences. Therefore, the preoperational stage should expose children to more music to enhance their musical perception abilities. Additionally, the preoperational period is the optimal time for children to establish absolute pitch. It is important to pay attention to the cultivation of inner pitch, and provide targeted training before the age of 7 if possible. Therefore, piano instruction during the preoperational stage needs to continue cultivating musical perception.

For children in the early preoperational stage, the focus should be on developing their musical perception abilities. Kodaly Zoltan emphasized that "children who do not start by singing before learning an instrument are destined to have no music in their lives" [17]. In piano instruction during the preoperational stage, children can be encouraged to sing the melodies of the pieces they are playing, which helps cultivate their sense of melody and pitch. Before learning a new piece, the piano teacher can guide students to sing the melody and rhythm, using singing to stimulate the children's musical perception abilities. This not only helps students better grasp piano knowledge, but also comprehensively enhances their musical abilities.

4.3. Challenges of Online Piano Teaching

In online courses, network issue is a rather complex problem. During piano teaching, one may encounter issues such as fluctuating network signals, network disconnection, and network delays. These issues may indirectly impact the quality of teaching and have an effect on interaction between teachers and students. It is crucial for online educators to address network issues that may arise during the class. Preparedness in handling such unforeseen situations is paramount to ensure a smooth learning experience.

Otherwise, teachers mentioned the concern about immediate feedback in class. Due to different issues, there are situations in class that students give responses slowly. In traditional offline classes, teachers can judge students' understanding by observing their expressions, and providing teaching plans. In online courses, teachers cannot grasp students' dynamics immediately. To improve this situation, teachers can add more interactive games to quickly determine if students have understood key points, also serving as a way to improve student attention.

4.4. Combining Online and Offline Teaching

Blended learning is the integration of traditional and online classrooms. Blended teaching of piano course combines the advantages of traditional piano classes and online piano classes supported by modern information technology. Firstly, online teaching can help students prepare in advance before class, assist teachers during class, and supervise students' practice after class. Secondly, compared to

online teaching, offline teaching can more directly deliver the teaching content. As a form of art, the piano requires a tangible experience that cannot be completely replaced by network technology. Therefore, effectively applying a blended teaching model of online and offline teaching in piano teaching, balancing the weights of both, and exploring a more suitable piano teaching model for the enlightenment stage to serve future piano teaching.

5. Conclusions

This article focuses on the online piano enlightenment for children aged 4-6. Through the study of "Piaget's cognitive development theory," this paper has preliminarily grasped some developmental laws of children's cognitive abilities, proposed some new ideas for enlightening children's piano teaching, and combined this theory with children's piano enlightenment education. Moreover, this study offers prospects for future online piano education, aiming to serving as a valuable resource for both teachers and parents alike.

With the popularization of smart pianos, such as Yamaha's automatic performance piano, remote teaching and even collaborative performances from different locations are possible. This allows us to see more potential possibilities for the piano and technology. We envision a future where AI technology will revolutionize piano teaching, and VR technology will provide immersive learning experiences. The combination of these technologies with pianos holds great promise for enhancing the efficiency of music education.

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