

# *A Study on the Impact of Music Education on Children's Physical and Mental Development*

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**Abstract:** The theory of music education is a theory specifically aimed at the learning and teaching process of music education. It covers all aspects of music, ranging from its basic elements, such as rhythm, melody, and harmony, to musical psychology and social dynamics, and how to teach music effectively. Music theory plays a key role in understanding and evaluating the various aspects of music education. These theories not only provide the basis for the understanding and interpretation of music education, but also provide the guidance for how to teach effectively. In this paper, the application of music education theory in piano teaching and the relationship between music education theory and children's physical and mental development, so as to show the importance of music teaching theory.

## 1. Introduction

The basic theory of music education is a broad subject that covers a variety of methods, principles and concepts of learning music. Academic research in this field includes understanding how people learn music and how to teach music to maximize the potential and competence of learners. It includes not only technical and artistic training, but also involves psychological, social and cultural factors. It first emphasizes the universality of music education. Everyone has the right to access and learn music regardless of the individual's age, cultural background, or skill level. Music education is not only about teaching people how to play music or appreciate music, but more importantly to help learners understand how music works in their lives and how to express their thoughts and emotions through music. In addition, it also studies the social and cultural context of music learning. Music is not only an expression of individuals, but also a reflection of society and culture<sup>[1]</sup>. It also focuses on the psychological processes of music learning, including understanding how learners receive musical information through hearing, vision, and touch, how to process it, and how to translate this information into musical skills and knowledge. It also emphasizes the concept of lifelong learning, where music learning takes place not only in schools or conservatories, but can also be conducted in homes, communities, and workplaces. The basic theory of music education

encourages learners to learn music in different life stages and situations, so that they can fully develop musical skills and knowledge, as well as their love and appreciation of music.<sup>[2]</sup>

In music learning theory, there is a widely accepted teaching method called music movement method, which is the only piano teaching method completely based on music learning theory<sup>[3]</sup>. It is written by Marilyn Lowe and contains 24 textbooks and supplementary books, including Christmas books and preschool-friendly books (keyboard games A and B). This approach covers questions, such as: How do children and adults learn differently? What is internal listening, and why is it important? What are the stages and types of music learning? How should music learning be sorted out? How does music learning resemble language learning? This approach is a perfect starting point for exploring the profound and superior ideas that may shape our understanding of musical learning, and from which we can better teach music.<sup>[4]</sup>

## **2. Exploration of music education theory**

### **2.1 Application of music education theory in piano teaching**

The application of music education theory in piano teaching is a deep combination of practice and theory. This application is not simply an application of theory to practice, but a process in which theory and practice influence and inspire each other. In piano teaching, the application of music education theory involves many aspects, including teaching methods, learning strategies, teaching evaluation, and the interaction between teachers and students. Theory can be applied in teaching practice to help teachers understand students' learning process, optimize teaching methods, and design more effective teaching strategies. In terms of teaching methods, music education theory emphasizes diversified and individualized teaching methods. This means that in piano teaching, teachers need to adopt different teaching methods according to the characteristics and needs of each student. For example, for novice children, teachers may adopt more specific and direct teaching methods, such as demonstration and imitation. For students who already have a certain piano foundation, teachers may adopt more abstract and innovative teaching methods. In terms of learning strategies, music education theory advocates students to actively participate in learning, and encourages them to develop the ability of independent thinking and problem-solving<sup>[5]</sup>. In piano teaching, this may be expressed as encouraging students to self-evaluate their performance, finding their problems in playing, and exploring how to improve their performance. It includes the evaluation of students' technical skills, musical understanding, performance ability, and innovative thinking.

Piano teaching also emphasizes the concept of lifelong learning<sup>[6]</sup>. According to music education theory, learning the piano is not only to master a skill, but also a process of personal growth and development. Therefore, piano teaching needs to encourage students to develop their independent thinking ability, innovative thinking, as well as their love and appreciation of music in the learning process, so that music can accompany children for life happiness. In this way, they can not only learn the piano in class, but also continue their music learning and exploration outside the classroom. The application of music education theory in piano teaching also involves the understanding of the social and cultural background of music. For example, teachers may teach music in different styles and historical periods to help students understand the meaning and value of music in specific social and cultural contexts. In addition, teachers may also guide students to explore how their own cultural background and personal experience can influence their understanding and expression of music. Music education theory also emphasizes constructive learning, that is, acquiring knowledge through practical operation and experience. In piano teaching, this usually means an emphasis on practical performance rather than just theoretical learning. By letting students play more and try more, teachers can guide students to independently discover the patterns, structures and expressions

in music works. In addition, the emotional education in music education theory is equally important for piano teaching. Music is not only a demonstration of technology and skills, but also an expression of emotion and personal experience. In piano teaching, teachers should encourage students to understand and express the emotional content of the music works, such as by exploring the background of the works, the composer's intention and personal feelings of the music. Music education theory also emphasizes the comprehensive assessment of students. This includes not only their playing skills and musical knowledge, but also their creativity, emotional understanding, and learning attitude. For example, by holding regular student concerts, evaluating students' performance, and providing personalized feedback, teachers can have a comprehensive understanding of students' learning progress and development needs. In the aspect of curriculum design, music education theory advocates comprehensive learning. This means that piano teaching should not be limited to technical practice, but should include the study of music theory, historical and cultural background. In this way, students can access a more comprehensive music education and understand the meaning of music in a broader cultural and historical context. The theory of music education also emphasizes the combined use of innovation and technology. With the development of technology, digital media and online learning tools have become more common in piano teaching. For example, using digital music software, online video tutorials, and interactive music games can enhance students' learning experience and provide more diverse learning styles. These technical tools not only make the teaching more lively and interesting, but also help students to learn autonomously in an informal environment. Music education theory also emphasizes the importance of reflective practice. Piano teachers are encouraged to conduct continuous self-assessment and reflection to improve teaching outcomes. By reflecting on teaching practice, student feedback and teaching results, teachers can constantly adjust and optimize teaching methods to better meet the needs of students. The application of social culture theory in piano teaching cannot be ignored. This theory emphasizes the role of social interaction in the learning process. Piano teaching can promote the communication and cooperation between students through group learning, dialogue between teachers and students and cooperative performance. Such social interactions not only enhance the learning experience, but also promote students' social skills and teamwork skills. Music education theory also emphasizes the importance of cultural diversity in piano teaching. By introducing musical works of different cultures and styles, teachers can broaden students' horizons and enhance their understanding and appreciation of different musical traditions. The introduction of this diversity not only enriches the teaching content, but also provides students with a more comprehensive and inclusive music education. Finally, the music education theory advocates the concept of lifelong learning<sup>[7]</sup>. In piano education, this means encouraging students to see music learning as a lifelong journey, not just the goal of reaching a certain level of technology. By cultivating students' persistent interest in and love for music, teachers can stimulate students to continue to explore and learn music.

To sum up, the application of music education theory in piano teaching is comprehensive and in-depth. It involves not only the design and implementation of teaching methods, but also the comprehensive assessment of students, innovative methods of utilizing technology, the consideration of socio-cultural factors, and the cultivation of students' lifelong learning attitude. Through the application of these theories, piano education can be more efficient and comprehensive, contributing to students' comprehensive development in the technical, emotional and social levels.

## **2.2 Relationship between music education theory and children's physical and mental development**

Music, as a globally popular language, is inextricably linked to the human mind. As an important

way of enlightenment education, music education has a profound impact on children's physical and mental development. Especially the piano, as a musical tool, has its unique charm and influence. The following will discuss the theory of music education from physiological, psychological, emotional and social aspects, especially the relationship between piano learning and children's physical and mental development. First of all, for physiological aspects, in the process of piano learning, children's finger muscles, eye and hand coordination, and body coordination have been effectively exercised. The performance of the piano requires the harmonious coordination of both hands. The left hand plays the chord of the low zone and the right hand plays the melody of the high zone. This independent cooperation between the left and right hands can significantly improve children's physical coordination ability. In addition, the correct sitting posture must be maintained in the process of playing, and the standardization of this body posture is also helpful to the cultivation of good habits in the future. Secondly, from a psychological point of view, the process of piano learning can promote children's self-cognitive ability and enhance their sense of self-worth. For every child, successfully playing a piece of music is the affirmation of their own ability, but also the sublimation of self-cognition. This sense of achievement and self-confidence will be deeply imprinted in their hearts, inspiring them to have greater determination and courage in the face of difficulties in life. At the same time, independent playing exercises can also help to develop their autonomy and self-drive. For emotional development, piano music itself has a strong appeal, which can influence and mobilize children's inner emotions<sup>[8]</sup>. The rich emotional expression mode of piano music can help children to understand and express their emotions, and provide them with a □ of releasing their inner emotions, so as to achieve the effect of regulating and stabilizing their emotions to some extent. In the cultivation of social ability, piano learning is not only a process of individual solo learning, but also contains an experience of group ensemble. This experience of group ensemble can foster teamwork and social skills. For example, when children need to learn how to coordinate with others, how to play with others, how to integrate their own performance with others, in order to achieve the best musical effect. This requires them not only to learn to listen to others, but also to learn to respect and understand others, so as to improve their social skills and teamwork spirit. However, the impact of music learning on children's physical and mental development is not achieved overnight, and requires time and continuous practice. Each child is a unique individual, being both receptive, understanding and expressive. Therefore, music education, especially piano education, should be centered on children's development needs, fully respect children's personality and interests, so as to improve children's learning motivation and stimulate their innovation ability.<sup>[9]</sup>

When exploring the relationship between children's physical and mental development and music education, it is first necessary to understand the physical and mental characteristics of children at different ages and how music education interacts with these characteristics. In the early developmental stages, children's sensory and cognitive systems develop rapidly. Music education can promote the development of sensory coordination and cognitive abilities in children. For example, rhythmic sense training in musical activities improves children's time perception ability, while melody and harmony training in music can stimulate their auditory processing ability. In addition, the fingers and body movements that children make while learning music help to improve their fine motor skills and physical coordination. In terms of emotional and social development, music education also has an important influence on children. Music is a powerful form of emotional expression that can help children learn to identify and express different emotions. For example, different musical styles and melodies can trigger different emotional responses in children, thus enhancing their emotional cognitive ability. Furthermore, collective music activities, such as chorus and band, have not only provided musical learning opportunities, but also promote child social skills development such as teamwork, communication, and social interaction. Music education is

also closely related to children's language development. Studies have shown that music training can improve language processing skills in children, especially in rhythm perception and sound discrimination. This is because music and language processing overlap in many regions of the brain. For example, rhythm training not only helps children understand the musical beat, but also improves their sensitivity to verbal rhythm. In terms of cognitive development, music education can improve children's memory, attention and thinking ability. Learning and practice of musical works require children to remember melodies, chords and rhythms, and this memory training helps to improve their short-term and long-term memory abilities. In addition, music requires sustained attention and concentration, which is crucial to improving attention control in children. Music education is also closely related to the development of children's creativity. By creating music or improvising, children are able to express their thoughts and emotions and stimulate creativity through the process. Music creation activities require children to use their imagination and innovative thinking, and these skills are equally important for children's learning in other disciplines. (Table1.)

Table 1: Jean Piaget's Stages of Cognitive Development

Typical Age Range	Description of Stage	Developmental Phenomena
Birth to nearly 2 years	Sensorimotor Experiencing the world through senses and actions (looking, hearing, touching, mouthing, and grasping)	Object permanence Stranger anxiety
About 2 to about 6 or 7 years	Preoperational Representing things with words and images (symbolic thinking); using intuitive rather than logical reasoning	Pretend play Egocentrism
6 or 7 to 11 years	Concrete operational Thinking logically about concrete events; grasping concrete analogies and performing arithmetical operations	Conservation Mathematical transformations
About 12 through adulthood	Formal operational Abstract reasoning	Abstract logic Potential mature moral reasoning

Finally, music education also has a positive impact on children's self-esteem and self-efficacy. By learning music, children can achieve a sense of accomplishment, especially when mastering new songs, completing performances, or achieving learning goals. This sense of accomplishment helps to improve their self-esteem and self-efficacy, making them more confident about other challenges. Recognition of musical achievements, whether from teachers, peers or parents, is crucial for children to form a positive self-perception and a sense of self-value. Music education can also promote children's mental health and emotional regulation ability. Musical activities, such as playing, singing, or composing music, can serve as a channel for emotional release, helping children deal with complex emotions or stress. In this process, they learned how to express and manage their emotions in art forms, which is crucial for their emotional maturity and mental health development. From a neuroscience perspective, the impact of music learning on the brain is also significant. Studies have shown that long-term music training is associated with changes in brain structure and function, especially in areas responsible for music processing, memory, attention, and sensory coordination. These changes reflect the positive effects of music education on cognitive and perceptual abilities, as well as evidence for brain plasticity. In educational practice, incorporating music education into children's comprehensive education program can improve their learning motivation and participation. Music education not only increases the diversity of school curriculum, but also provides children with an interesting and challenging way of learning to learn. Through

music education, children can not only learn music knowledge and skills, but also apply the results of music learning in a wider range of education fields.

In conclusion, there is a close and complex relationship between children's physical and mental development and music learning. Music education can promote children's physical and mental development in many aspects, including cognitive, sensory coordination, emotional expression, social skills, creativity, and mental health. Therefore, music education should be regarded as an important component of the integrated development program, and its role in child education should not be ignored. Through music education, children can not only gain artistic training and appreciation, but also benefit in a wider range of life skills and personal growth.

### 2.3 The main methods of music education theory

The most important method of music education theory is the music teaching method of Dalcroz, which combines music theory and body practice skillfully together, forming a unique and effective teaching method. In children's piano teaching, this teaching method can help children to better understand music and improve their ability to create and express music. Its education law has four principles<sup>[9]</sup>: First, cultivate students' perception and response to music. Secondly, to enhance the musical feeling of the schoolchildren, that is, the internal hearing and physical feeling. In the Dalcroz teaching method, music is not only listening, but also experiential. Through specific practical activities, such as body rhythm and finger training, students can directly feel the rhythm and melody of the music, so as to improve their sense of music. Through repeated practice and a lot of contact with different styles of music, the children can accumulate rich auditory material, at the same time through body rhythm, keyboard operation, they can enhance the music rhythm, timbre, volume and pitch change of body memory, the two aspects of training make them formed a rich beautiful storage, for subsequent learning provides a solid foundation.

Three important aspects of Dalcroz music teaching method- -body rhythm, solfeggio, ear training and improvisation, and body rhythm training, can help children to perceive and understand the rhythm of music through body movements, and internalize music into their own muscle memory, so as to improve their understanding and perception of music. Solfeggio ear training, by letting the children watch, listen and sing at the same time, not only exercise their multiple perception ability, but also improve their intonation and sense of rhythm. Impromptu creation can stimulate children's innovative consciousness and imagination, so that they can experience the charm of music and feel the fun of art in the process of creation.

In the beginning stage, the training of body rhythm mainly adopts the improvised music material, especially the impromptu music containing the music elements that students have learned. Students master music by learning rhythmic vocabulary. The rhythmic vocabulary includes two categories: static movements (such as speaking, singing, clapping, directing, swinging, rotating, bending, etc.) and spatial movements (such as walking, running, climbing, jumping, falling, etc.). These two types of movements can be used by the body and foot movements to represent the real value, with the arms to represent the rhythm, etc. Through the above learning, students can effectively combine movement and sound, develop the ability of internal auditory and dynamic perception, and improve the dynamic imagination and memory. Through the breathing training, you can relax the body better. In vocal music teaching, whether bel canto, national, popular, breathing is taken as the most important part. Its importance cannot be overemphasized. The famous vocal music educator Becky once said: "Who master the right breath, who will master 80 percent of the singing." However, the topic of breathing is rarely mentioned in books on piano playing. However, "the position of breathing in musical performance is not limited to the important principles of singers and wind musicians. Once we start to see the way we breathe, we realize that shallow breathing and holding

breathing are often associated with muscle tension; instead, relaxed, deep, rhythmic breathing is related to muscle relaxation.

She said: " With a simple exhale, a player can find a way to resist tension: the upper part of the torso is moving freely, the back and neck are relaxed, and the shoulders are naturally drooping. How to make effective use of the music education theory of Dalcroz, to improve students' ability to feel music, to understand music, and to express music. From the perspective of teaching, the music teaching method brings about a comprehensive way of learning. This is not only a technical improvement, but also a whole shaping of the musical spirit, body and emotion. Students are taught how to feel the rhythm of the music from the heart and express it through physical movements. They are encouraged to understand and express music, and moreover, Dalcroz's music teaching has a special emphasis on communication between students. This communication is reflected not only in the music, but also in their understanding and imitation of the body movements. This way not only improves students' collective consciousness, but also strengthens their sense of responsibility and team spirit in collective activities.

### 3. Conclusion

To sum up, music education theory is a comprehensive and in-depth subject, which not only focuses on the improvement of students' skills, but also pays attention to the overall development of students. By researching and practicing these theories, teachers can better guide students, help them explore their potential and cultivate their musical talent, while also laying a solid foundation for their all-round development. The implementation of this theory makes us see the possibility and potential of music education, which makes us realize that music education is not only the teaching of skills, but also the edification of emotion, the enlightenment of thinking, the sublimation of human nature and the beautiful experience of life. Early music education, especially piano education, is considered to have a crucial influence on children's cognitive development. As early as children begin to touch the world, they begin to respond sensitive to sounds in their environment. Music, as a special sound, has a particularly profound influence on children. Children with early exposure to music, their musical potential will be stimulated to a greater extent, and their sense of music will be cultivated earlier. In addition, music education can also help children make progress in other areas of learning, such as math and reading ability, because music education can train children's concentration and memory, which has a positive role in promoting their learning in other areas.

In conclusion, the basic theory of music education is a comprehensive, diversified and flexible discipline that seeks to understand many aspects of music learning, including individual differences of learners, social and cultural backgrounds, psychological processes, teaching strategies and methods, and the idea of lifelong learning. By understanding these aspects, the basic theory of music education provides the theoretical basis and guiding principles for improving the quality and effect of music education.

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