

The Nature and Specificity of Music Training: A Multifaceted Exploration

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Abstract: The predecessor of the piano was the plucked clavichord, also known as the harpsichord. It is much the same as the internal principle of the piano, which is equipped with a soundboard and many taut strings inside the body. The difference is that the piano's hammer strikes the strings, and the plucked clavichord uses a plucked plectrum to pluck the strings.

In addition, there is a keyboard instrument of the same lineage, the clavichord, which is also an instrument equipped with a percussive device, and is pronounced with a brass mallet; It was not as widely used as the plucked clavichord, and was mainly played in aristocratic families at the time.

In the 17th ~ 18th centuries, the plucked piano had a very prominent position in the musical life at that time, and it can be said that it was its heyday.

By the beginning of the 18th century, the music of continental Europe was developing rapidly, and the plucked clavier piano with weak volume could no longer meet the needs of musicians at that time, so it was gradually replaced by the loud piano.

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1 BIOLOGICAL FOUNDATIONS AND THE DRIVE FOR MUSIC

Human beings exhibit innate predispositions relevant to music processing. Infants demonstrate sensitivity to musical contours, rhythm, and consonance/dissonance[6]. The auditory system is exquisitely tuned for processing pitch, timbre, and temporal patterns – the fundamental building blocks of music. Motor systems show an inherent capacity for entrainment, the synchronization of movement to an external beat[7]. These predispositions suggest an evolved biological foundation upon which music training builds. While formal training shapes expertise, this innate scaffolding facilitates the initial engagement and learning process, making music a particularly resonant domain for human development.

1.1 THE CORE NATURE: STRUCTURED LEARNING

Music training is an intervention method to promote the development of brain cognitive function through practical activities such as musical instrument performance and singing, and its core benefit is reflected in the optimization of language signal processing ability. Studies have shown that the group that receives professional music training in the

early stage has significant advantages in auditory working memory capacity and speech recognition accuracy in noisy environments, which can delay the decline of speech perception in old age. Music training simultaneously activates mathematical and language-related brain region neural networks, enhances spatial positioning and visualization capabilities, and strengthens audio-visual information processing efficiency through multi-sensory collaborative mode. Studies have pointed out that the remodeling of white matter structure and the strengthening of direct neural pathways induced by music training are important neural mechanisms for cognitive function improvement.

1.2 THE CONFUSION OF PIANO EDUCATION FOR CONTEMPORARY CHINESE STUDENTS

Piano education in United States United States is different from other countries, and it integrates educational methods from all over the world. This is because United States was a country of immigrants, especially during the Second World War, when many musicians fled from all over the world to United States, which made the United States musical career as much as any other discipline. Musicians from all over the world who come to the United States have strong characteristics of their own national education

methods, which have been both comprehensively developed and constantly improved. Therefore, the so-called United States style of education is actually only a synthesis of the music education methods of European countries. In the United States, textbooks such as Beyel and Czerny are rarely used, and there are a large number of similar textbooks, and each teacher chooses his or her best teaching materials to guide his students. Of course, doing so contributes to the production of some excellent teaching materials. United States the number of children learning piano is not particularly large, unless parents have great hopes for their children, the time to start learning piano is usually after school.

On the other hand United States emphasis on individual creativity makes children have a great deal of independence, and in most cases, as long as the students themselves feel that they have lost interest, parents will no longer be reluctant and stop learning. Fortunately, United States has their own music and can play it on the piano. When children have received a period of basic training in classical music, they will easily adapt and play their own music, i.e. jazz or blues. Therefore, in United States textbooks, jazz-style works occupy a large proportion. Since these are not imported from abroad, but United States' own music, children have always grown up with this kind of music, so it is relatively acceptable for children learning piano. In the United States, although the number of pianos sold is high, the number of people actually learning piano is not very large. This is due to the fact that the piano does not last long, so the piano quickly becomes an ornament for every family.

1.2.1 History of Piano Education in China

Piano education in Germany After the 19th century, piano education in Germany was mixed with various schools and methods. The use of a variety of teaching materials and the absence of specific educational curricula have become the hallmarks of piano education in Germany. Germany music materials are widely used by piano teachers around the world and are still used today, such as the works of composers such as Clementi, Czerny and Beyer. But needless to say, everyone is also very clear that for children's piano education, teaching materials do not represent everything, and more important is the educational method adopted by the instructor. In Germany, the approach to education varies greatly depending on the teacher, but generally speaking, one teacher holds several different textbooks and uses them separately for the students, or gives two or three textbooks to one student at the same time.

A: Hungary piano education Hungary is a landlocked country, which is bordered by Romania and Ukraine in the east, Yugoslavia in the south, Austria in the west, and the Czech Slovakia in the north. It has a total area of 93,000 square kilometers and a population of about 13 million. According to historical research, Hungary is a people belonging to the East, around the 8th century, after the great migration of ethnic groups, settled in the current area, so that the original nomadic Hungary gradually engaged in

agricultural work. Therefore, early Hungary music is similar to some Chinese folk music, and most of the melodies are composed of pentatonic scales. After entering the 11th century, due to the adoption of Western Christianity as the state religion, it began to accept European influences in terms of music culture.

B: In Hungary, all instrumental music education is organized by the state, and such schools, with the exception of some independent buildings, are mostly attached to schools or cultural centers at all levels throughout the country. Before entering school, there must be a one-year preparation period, and unlike other countries, they only develop the sense of rhythm and listening skills, as well as the basic elements of reading and writing necessary for learning music, and do not use musical instruments, which is the method pioneered by Kodály to train children how to "create and change" the beatmap into music. After entering the music school, students also have strong Hungary characteristics in the choice of teaching materials, and Kodály's "Music School" 1,2 and Bartók's "Small Universe" and "For Children" are compulsory teaching materials for children to learn piano.

C: Piano Education in Russia ,The Russian nation is a nation with a long history of art and culture, and in this land, many musicians, writers and world-class masters in fine arts, theater and ballet have been born. The same is true of the piano world, with a large number of world-famous grand pianists such as Rubinstein, Negos, Horowitz, etc. The current educational system in Russia is very similar to ours, but there are some differences in the music education system. General compulsory education is 10 years and includes elementary, junior and senior high schools. Music education includes three types of music schools, divided into two lines, both of which contain 11 years of music education, one is a special music school, It is the education of nurturing specialists; The second is the children's music school (extracurricular education, 7 years) and secondary music education (4 years), which is an education that cultivates general enthusiasts. Depending on the level of study, they can also be interspersed with each other, that is, students from children's music schools can be admitted to special music schools, and students from special music schools can also transfer to secondary music schools. After that, there are two types of higher education, namely the Conservatory of Music and the University of Music Education. In a special music school, students live in the school. During the 11 years of study, piano students study piano as well as the courses they study in a school that is generally compulsory. These schools are affiliated with various conservatories and are set up in the middle of major cities in the country, providing a large number of students for conservatories. The Moscow Conservatory and its affiliated conservatories are of the highest level and are the center of piano education in the country. The school selects the best talented children from all over the country and conducts highly specialized education here.

1.2.2 Repertoire detailing in piano teaching

Among the books published in Hungary, books and journals that study piano playing methods also account for a certain proportion, mainly discussing the general laws and principles of piano playing, and trying to analyze piano playing techniques from the perspective of physiology and anatomy. From these materials, it can be seen that the situation of music education in Hungary is somewhat different from other countries, and there are many Hungarian education methods, and because of this, the country's music level has been greatly improved. Therefore, its educational methods and education system and its formation process have also attracted widespread attention from countries around the world.

Etudes for piano are primarily intended to train piano technique, and each etude has a clear vision for training a certain applied technique. Many of these etudes have a certain musical image, and the melody is also more beautiful and beautiful. The famous Cherny wrote a large number of etudes from shallow to deep, and we commonly use works 599, 849, 299, 740 and so on. They have been tested by long-term practice and have become compulsory teaching materials in foreign and domestic piano teaching. Selected by the French pianist Bileau, Cramer's "60 Piano Etudes", arranged by Tausik, and Clemandy's "Selected Piano Etudes 29", also known as "The Way of the Famous Hand", are also useful intermediate and advanced etudes. As for the concert exercises written by Chopin, Liszt, Rachmaninoff, Debussy and others, they have been used not only to practice technique, but also have high artistic value and are common in concerts. Polyphonic musical compositions There are many polyphonic musical works in the piano literature; Therefore, in teaching, it is first necessary to train students to have good multi-voice hearing and finger independence and control ability, and only on this basis can it be possible to further train students to master the polyphonic music style of the Baroque period and improve their performance ability. In polyphonic music, the most concentrated and effective teaching material is fugue, and the "Twelve Equal Rhythm Piano Pieces Collection" (two volumes) written by the famous German polyphonic master Bach is an excellent musical literature and teaching material.

After talking about the current situation of piano education in China, through the current investigation, the importance of the detailed processing of a piece of music and the analysis of the composer's character in the minds of many educators and educators is shown in Table 1.

TABLE 1: TEACHERS OF ALL KINDS BELIEVE IN THE IMPORTANCE OF DETAIL

Repertoire details/Training staff	Teachers affiliated with piano training institutions	Teacher at the conservatory
Structure of music	100% unimportant	100% Very important
Musical terminology	80% Of little consequence / 20% important	100% Very important
Expression marks	50% Of little consequence	75% Very important / 25% Of little consequence
Musical performance	100% unimportant	100% Very important

Since the content of this article focuses on the multi-faceted exploration of music training, this survey includes interviews and discussions with 5 piano teachers from conservatories and 5 teachers from piano education and training institutions. The process is: go to the education and training institution to discuss the details of the piano repertoire involved in children of different ages with their piano teachers - and then go to the local conservatory teacher to discuss the importance of the details of the piano repertoire, and discuss together whether the detailed handling of the piano repertoire has an important impact on teaching. This survey reflects the different music teaching for students of different ages, because the students in the professional conservatory teachers are older, so the content involved is more specialized and complex. As teachers in piano education and training institutions, most of the students are children aged 5-12 years old, unable to understand the content of music, the creative background of musicians and a series of more professional knowledge, so they generally teach young children based on finger ability.

2 THE SPECIFICITY: MULTIMODAL INTEGRATION AND UNIQUE DEMANDS

The specificity of music training lies in the unique combination and intensity of demands it imposes, leading to the development of highly specialized skills and neural circuitry:

A: Auditory Processing: Musicians develop a remarkable ability to discern subtle differences in pitch, timbre. They are able to analyze emotional expressions from melodies and get detailed processing from them.

B: Physical expression and control: Playing music repertoire requires physical coordination and rhythmic control in each section. The players use the control of their finger muscles to make their movements and emotional expressions stronger or weaker.

C: Emotional expression and communication: Piano performance is the second creation of the work, and it is also a manifestation of the performer's understanding of the work. And everyone will have different understandings and feelings about the same work. But for things that are clearly marked on the beatmap and written clearly in black and white, then we can't take it for granted according to our own understanding. And everyone will have different ways to recognize a new work.

D: Familiar with the creative background: The creative background is like a "prequel" to a track, which plays a crucial role in understanding the connotation, emotion, and intention of the creator. Behind it often there are specific stories, experiences or emotions that touch the creator, resulting in moving melodies and lyrics. Understanding the context allows listeners to dive deeper into the world of the song and resonate with the creator, as if they are in the context depicted in the song.

3 CONCLUSION

As the king of musical instruments, the piano has expressive power close to that of a symphony. Especially well-developed modern pianos, which can independently express the intensity and amplitude of any emotion. However, due to its technical depth and complexity, it often requires long-term or even lifelong arduous practice to reach the point of perfection. Over time, teachers and scholars have regarded technology as the most important, exaggerated the significance of technology in teaching, learning, and performance, and even separated the expression of thoughts and feelings to specialize in technology and fell into the misunderstanding of emphasizing technology over art.

In piano teaching, according to the characteristics of students and the different stages in the process of mastering playing techniques and skills, corresponding teaching methods should be adopted to fully understand the regularity and stages of the formation of piano playing techniques and skills, so as to improve performance ability, make piano teaching better, and then complete the goals and tasks of education and training.

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REFERENCES

- [1] Herholz, S. C., & Zatorre, R. J. (2012). Musical training as a framework for brain plasticity: Behavior, function, and structure. *Neuron*, 76(3), 486-502. <https://doi.org/10.1016/j.neuron.2012.10.011>
- [2] Münte, T. F., Altenmüller, E., & Jäncke, L. (2002). The musician's brain as a model of neuroplasticity. *Nature Reviews Neuroscience*, 3(6), 473-478. <https://doi.org/10.1038/nrn843>
- [3] Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363-406. <https://doi.org/10.1037/0033-295X.100.3.363>
- [4] Zatorre, R. J., Chen, J. L., & Penhune, V. B. (2007). When the brain plays music: auditory-motor interactions in music perception and production. *Nature Reviews Neuroscience*, 8(7), 547-558.

<https://doi.org/10.1038/nrn2152>

- [5] Lahav, A., Saltzman, E., & Schlaug, G. (2007). Action representation of sound: Audiomotor recognition network while listening to newly acquired actions. *Journal of Neuroscience*, 27(2), 308-314. <https://doi.org/10.1523/JNEUROSCI.4825-06.2007>
- [6] Patel, A. D. (2011). Why would musical training benefit the neural encoding of speech? The OPERA hypothesis. *Frontiers in Psychology*, 2, 142. <https://doi.org/10.3389/fpsyg.2011.00142>
- [7] Repp, B. H., & Su, Y. H. (2013). Sensorimotor synchronization: A review of recent research (2006–2012). *Psychonomic Bulletin & Review*, 20(3), 403–452. <https://doi.org/10.3758/s13423-012-0371-2>
- [8] Kraus, N., & Chandrasekaran, B. (2010). Music training for the development of auditory skills. *Nature Reviews Neuroscience*, 11(8), 599-605. <https://doi.org/10.1038/nrn28829>.
- [9] Moreno, S., & Bidelman, G. M. (2014). Examining neural plasticity and cognitive benefit through the unique lens of musical training. *Hearing Research*, 308, 84-97. <https://doi.org/10.1016/j.heares.2013.09.012>
- [10] Schellenberg, E. G. (2019). Correlation = causation? Music training, psychology, and neuroscience. *Psychology of Aesthetics, Creativity, and the Arts*, 13(2), 147–152. <https://doi.org/10.1037/aca0000233>(Note: Schellenberg offers a critical perspective on transfer claims, included for balance).