

# *Piano Education and Cultivation of Creative Thinking Ability*

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**Abstract:** In recent years, the proportion of education expenditure to household expenditure has increased year by year, and the society pays more attention to the comprehensive education of teenagers. Piano education is an indispensable part of art education, and more and more teenagers learn piano art to improve their artistic sentiment and innovative thinking. This paper briefly describes innovative thinking, its significance in piano education, and the development law of piano education promoting innovative thinking, aiming at exploring the cultivation methods of students' creative thinking in piano education, so as to help students appreciate the beauty of piano art.

## **1. Introduction**

Creative thinking can produce strong creativity, which refers to the novel and unique way of thinking that individuals are influenced by many factors. In recent years, many scholars at home and abroad have made analysis from the perspective of the overall field or the specific field, and the research work on cultivating individual creative thinking has provided us with important progress in understanding creative thinking.

The research of creative thinking from the personal point of view aims to understand how and why a person is creative. When an individual produces a creative idea or creates a creative work, what processes take place in the individual's mind and brain, what cognitive factors are involved in promoting creative thinking and action, and why some people have more creative ideas or achievements than others, all these questions deserve our further consideration. Generally speaking, according to the intellectual thinking model elaborated by Guilford, the "father of creativity" in Britain, we usually divide creative thinking into two categories, namely, creative idea generation and creative problem solving, also known as "divergent" thinking and "convergent" thinking. The emergence of divergent thinking refers to different possible responses to ambiguous problems. Although this kind of open-ended problem has a lot of room to solve, the creativity of ideas will be very different, and some ideas are newer and more efficient than others. In contrast, convergent thinking refers to finding a single correct solution to a problem that can't be solved by a straightforward analytical method. The process of solving such problems needs to reconstruct the problem representation to overcome the previous dominant but inadequate solutions, and it is usually accompanied by a sudden experience of epiphany.

According to scientific research, the emergence of creative thinking can be divided into the following four related stages. The preparation stage (i.e.the processing stage of the problem), the

brewing stage (i.e., when we no longer deal with the problem consciously, subconscious processing usually continues to analyze the problem), the inspiration stage (i.e. the spontaneous epiphany when the potential solution comes to our mind) and the verification stage (i.e. the practice and evaluation of the candidate solution generated by creative thinking).

In order to study the creativity of divergent and convergent thinking in a standardized environment, many methods for cultivating creative thinking have been developed. A prominent feature of divergent thinking task is “alternative uses”, which requires the research object to find creative new uses for ordinary objects. The performance of divergent thinking tasks is usually scored from both quantitative and qualitative aspects. Quantitative evaluation reflects the fluency and flexibility of innovative thinking by analyzing the total number of responses or the number of responses of different categories in a given time. Qualitative evaluation will use more complex creative production tasks, requiring drawing, writing stories or improvising musical instruments. Evaluate the performance of the subjects on these tasks. Researchers' standardized measurement of creative thinking enables us to explore individual thinking activities behind creative cognition, such as memory, control and attention, with specific patterns. At present, research shows that controlled, goal-oriented and spontaneous and unguided processes are all related. Although active creative thinking benefits from effective strategies and high cognitive ability, the spontaneous process may be particularly related to more complex creative work that is deadlocked and involves the incubation stage.

Creative thinking is increasingly understood as the specific configuration of basic memory, control and attention processes and their neural matrix. This set of neurocognitive functions usually gives people the ability to engage in creative thinking. However, people still have great differences in creative task performance and creative lifelong achievement. The central task of the study of individual creativity differences is to explore the scope and causes of this variability, and to understand how differences in creativity potential ultimately lead to differences in creativity achievements in real life. According to the existing model, creative achievement depends on the cognitive potential of creative thinking on the one hand, and the intentional factors such as personality, professional knowledge and environmental conditions on the other. Creativity is related to high openness to new experiences and high intrinsic motivation to engage in creative behavior. In addition to daily creativity in the traditional sense, more professional forms of creativity mainly depend on high-level expertise. An individual must know the tools and rules of a given field well in order to expand, redevelop or finally break them in a creative way. The study also found environmental factors conducive to creativity, including the stimulation of the outside world and the support of science and technology.

## **2. The Significance of Creative Thinking in Piano Education**

The research of creative thinking in music is a good example. The cultivation of students' artistic thinking and innovative thinking is a particularly important part of piano education. In piano education, it is generally accepted that the cultivation of students' innovative thinking is more unified-the single and multiple dimensions of creative cognition are regarded as two sides of the same coin. In addition, since piano education involves a large number of experiences and behaviors related to culture, it constitutes an ideal research field, which can examine a wide range of innovative thinking abilities.

To cultivate students' innovative thinking and apply it to the piano playing process, students can improvise freely or take turns to produce subtle differences in expression. At the same time, they can repeat the main melody, cooperate to change the speed, stress and beat, and develop sudden changes in melody, harmony and rhythm. Besides, in the process of piano performance and other

music projects cooperating with each other, players can use innovative thinking to transform performance into a process of mutual discovery and negotiation, in which different parameters of movement, communication and imagination are dynamically generated, combined, mixed and redeployed to serve new functions and guide their activities through known and unknown music fields. Performers can reach a new state of psychological consciousness, effectively improve their concentration in the performance process, and explore spontaneous artistic inspiration in a creative way.

Apply creative thinking to piano teaching, optimize it constantly in the practice of piano teaching, form a benign teaching interaction with students, and enrich students' cognitive strategies in piano music creation. Through the exploration of lyrics, composition and performance, these artistic ideas and strategies collide with each other in the teaching process, providing a new perspective for the creation and performance of piano works.

## 2. The Development Law of Piano Education Promoting Creative Thinking

Since ancient times, people have always believed that imagination and creativity play a great role in art. No matter poetry, painting or performance, they can't do without the imagination and creation of artists. It can be said that without rich imagination and creation, there would be no all artistic works created by human beings. Piano is a living art, and imagination and creativity are also needed in the process of piano playing<sup>[1]</sup>. Piano education is an art education characterized by cultivating students' artistic breath and cultivating students' sentiment, aiming at improving students' creativity and imagination.

Piano education is one of the important parts of art education, so we must focus on cultivating students' creativity and imagination in the process of playing. Piano playing is not just a simple copying of the notes in the music score, but a deep penetration of the emotion and atmosphere expressed by the author's heart. This is the highest level of playing, and such playing is art. Performers should know that music score can't directly convey the author's feelings, and they need to deeply explore the true feelings under the music score through their own imagination, creation and understanding, endow the notes with vitality, and truly convey the emotions and artistic conception expressed by the music score to the audience. Therefore, piano education needs to cultivate not only the player's skills, but also the player's creativity, insight and imagination.

Since ancient times, the emergence of any invention research in history is inseparable from imagination and creation, and many of the research results are inspired by piano art. For example, the law of atomic increment was discovered by British chemist Newlands under the inspiration of musical scales; Atomic transition experiment was completed by German physicist Heisenberg inspired by the law of overtone vibration frequency. Many of Einstein's research achievements are also deeply inspired by music, especially violin and piano music. The reason why art can bring inspiration and inspiration to people is that when appreciating music works, we should not only feel the rich emotions expressed in music, but also endow our own thinking and imagination with it in the process of appreciation. Therefore, the process of appreciating art is also a practical process.

Research shows that people have two kinds of creative thinking, namely, aggregation thinking and diffusion thinking, among which diffusion thinking is the main body and more important. Aggregation thinking has three main characteristics: identity, procedurality and comparison, which is a way of thinking with direction, scope and order to find the final conclusion from a lot of information. On the contrary, it is diffusion thinking. Diffusion thinking is a way of thinking that gets rid of the constraints of traditional ideas, abandons the shackles of traditional logic and thinking mode, and extends from multiple angles to multiple directions to find ways and means to solve problems, so as to get the final results and answers. Diffusion thinking has three main

characteristics: fluency, flexibility and originality. Like diffusion thinking, piano art is a process of constant innovation, constant enrichment of knowledge, constant discovery and constant presentation of new ideas. This is one of the reasons why piano art can significantly improve people's creative thinking.

Piano playing requires the cooperation between the brain and fingers, and the performer should have high accuracy and control. Studies have shown that the speed of muscle contraction can be accomplished by the nerve center by changing the frequency of nerve impulses. Long-term training of innervated muscles can significantly improve the excitability of cerebral cortex and the degree of unity between brain and fingers. In the usual performance practice, players should pay attention to the accuracy and strength of playing movements and touching keys with their fingers, so as to enhance the accuracy and control of performance. In addition, in the process of playing, it is necessary to keep a certain degree of excitement, so that the cerebral cortex can better convey excitement, have more agile thinking and richer imagination and creativity.

### **3. Ways to Strengthen the Creative Thinking Ability of Piano Education.**

(A) Pay attention to students' emotional teaching in piano learning.

The performance of a successful piano work can express the author's inner feelings in the process of performance, make the audience appreciate the aesthetic feeling of piano performance, and arouse the audience's inner resonance. Therefore, in the process of piano teaching, while imparting playing skills, strengthening students' cognition of playing repertoire background and author's emotion, and fully using flexible and vivid musical emotion to stimulate students' musical nature are conducive to cultivating students' innovative thinking in piano learning, thus achieving the teaching effect that musical emotion and playing skills complement each other and rise alternately.

(B) Renew the teaching mode and create a good musical atmosphere.

Traditional piano lessons are often taught by teachers and followed by students. They only pay attention to the teaching of fingering and skills, and require students to play fluently and completely. The form is monotonous and boring, which makes it difficult for students to feel the artistic beauty of piano learning. Teachers should adopt innovative teaching mode, while training students' music theory knowledge and playing skills, encourage students to think boldly and imagine, and try to learn independently <sup>[2]</sup>. It's difficult to cultivate students' independent and innovative thinking in such a way that we can't just stay in the teaching process of teachers' blind lectures and students' passive input. Teachers should guide students to experience the creative ideas and feelings of the authors behind the famous piano music. At the same time, teachers should also try the methods of group competition and cooperative learning to encourage students to explore and learn from each other and cultivate their innovative thinking <sup>[3]</sup>.

(C) Improve teachers' quality and teaching concept.

Teachers' teaching methods will affect students' learning effect to a great extent. Teachers need to choose the best teaching methods to guide and encourage students to complete their teaching activities. In the teaching process, the creativity and quality of teachers themselves play a very important role in cultivating students' creative thinking. Therefore, teachers should constantly improve their own quality and ability, be strict with themselves, overcome their own shortcomings, update their educational concepts, and guide students to cultivate their creative thinking correctly with the best educational methods and improve their creative ability in this process.

(D) Strengthen students' independent performance ability.

In traditional piano teaching, teachers generally don't arrange class hours for students' independent practice, which lacks the cultivation of students' independent practice ability. In fact, training students' independent practice ability can help to further improve their creative ability. It

has been found that the teaching system of most piano education is imperfect at present, and students lack practical experience, so they can't effectively practice and create independently, which seriously hinders the expression of students' inner world and the development of creativity. Therefore, in piano education, it is necessary to supplement the arrangement of students' self-expression courses, such as improvisation<sup>[4]</sup>, and to strengthen the cultivation of students' ability to examine art. The purpose of this is to let students give full play to their imagination, expressiveness and creativity, express their feelings through piano playing, and further improve the teaching effect of piano education.

(E) Deepen the curriculum reform.

Deepening the curriculum reform plays a great role, which not only meets the needs of the society, but also promotes the development of piano education, and also improves the professionalism and comprehensiveness of teachers and students' abilities in all aspects. The specific measures are as follows: First, it is clear that the core of piano education lies in cultivating students' creative thinking ability. Besides, it is also necessary to cultivate students' good study habits, exquisite playing skills, strong psychological quality and excellent artistic attitude. Clarify the significance of piano education, further improve the piano education system and avoid the simplification and standardization of education<sup>[5]</sup>. Second, deepen the curriculum reform, focus on the change of teaching methods, make up for the deficiency of traditional teaching methods, adopt diversified teaching methods, and further strengthen students' creative thinking and practical ability. Teachers should update their educational concepts based on existing scientific and technological means, especially on Internet technology. Combining traditional educational methods with science and technology, such as intelligent performance, game teaching, intelligent practice, online music score, intelligent piano, intelligent error correction, automatic real-time evaluation, automatic instrument switching and other functions, can not only stimulate students' interest in learning, but also improve teaching quality and efficiency. In addition, the development of the Internet also provides online teaching conditions for piano education, and also provides a new teaching mode combining online teaching with offline teaching. The development of science and technology has promoted students' perception of piano art, eliminated some unfavorable factors for the development of piano education and deepened people's understanding of piano art<sup>[6]</sup>. Third, pay attention to the combination of indoor teaching and extracurricular teaching, the integration of group teaching and small class teaching, try to stimulate students' creativity by using games and music appreciation, and guide and encourage students to try independent creation and improvisation, so that students can keep their love for piano art.

#### 4. Conclusion

With the development of society, education is of great significance to the all-round development of the country and the cultivation of all-round talents. The core of modern education lies in cultivating talents' creative thinking ability, and so does piano education. This requires piano educators to change teaching concepts, enrich teaching contents, improve teaching requirements, deepen curriculum reform, enrich teaching process, meet the needs of the present society, and actively implement relevant policies. Only in this way can students' creative thinking ability be effectively cultivated.

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