Research on the Best Techniques of Piano Touching Keys Based on the Perspective of Musical Aesthetics under Computer Aided Technology

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Abstract. The development of piano art has always accompanied the constant innovation of piano playing technology. During the period of playing the ancient piano and plucking the ancient piano, the piano works were mostly fresh and smooth, and the playing methods were mostly finger movements. From the late 18th century to the early 19th century, the modern stringed piano replaced the plucked piano. Piano performance technology has developed to a certain level under computer-aided technology; and in today's highly developed human art civilization, piano playing skills are more scientific, more innovative and mature. In this development process, the finger is always the part that directly touches the piano. The strength, sensitivity, speed and variable touch mode and control ability of the finger are the basis of the performance.

Keywords: Tone, Aesthetic, Piano, Touch key, Skill, Computer Aided Technology

1. Introduction
Although it has only a history of more than three hundred years of development, the perfect tone and strong expression make the piano the king of the well-deserved instrument. Piano performance is a kind of coordinated movement of the whole body, but in a narrow sense, it can also be said to be a finger movement at a certain speed. The touch key is the most basic way of playing the piano. It is the basis for the piano performance skills to mature gradually. Today, when the art of piano performance is perfect, it is of great significance to study the methods and related skills of touch keys.

2. Touch keys are closely related to piano sounds
2.1. From the perspective of tone aesthetics, piano touch
In piano performance, the correct use of the touch-key method plays an important role in the ability to play beautiful sounds. It is conveyed to the viewer through the tone, and triggers a series of reactions of the viewer in terms of emotion, imagination, aesthetics and reason. Good sounds generally have the characteristics of concentrated sound, clean sound, rounded colors, etc. Good sounds are inseparable
from the standard touch keys, and the basic touch mode is also the basis of piano sounds, as shown in Figure 1 below:

![Figure 1](image1.jpg)

(a) Lifting the finger  (b) Close to the keyboard

(c) Skipping  (d) low finger quick hit

**Figure 1.** Four basic piano touch modes

In the above figure 1, the four basic touch modes play a role in the performance. We can understand that the process of making a good sound through the piano, whether the sound is pleasant or not, depends on the player's decision by the touch button. In the process, the strength of the touch and the accuracy of the touch method are closely related to the overall performance of the music. At the same time, it also reflects the performance of the player's playing skills and the ability to understand the works. Therefore, the method of touching the keys directly determines the success or failure of a piano performance, and is the basic skill of piano performance.

2.2. *Basic methods of piano touch*

The touch-key technique of the piano is closely related to the playing style. According to the different playing styles, the corresponding touch-key method is adopted to make the playing sound more in line with the requirements of the work, which is more conducive to expressing the content and mood of the music and obtaining a better performance.
Playing the piano is the result of the collision between the force and the reaction force between the finger and the key. 

It is this kind of collision that makes the finger feel tactile, also called the hand, while giving the finger elasticity, which also helps the player to control the keys. Many indicators of finger touch (such as speed, strength, direction, depth, etc.) determine the quality of the piano's volume, tone, sound quality and other factors. A good performer must be able to combine and use many touch-key skills flexibly and accurately. Only by mastering and applying these skills can you play a good work calmly and project the text form of the work into the audience's ears.

2.3. Differences in the touch key indicators
Detailed analysis of the differences in the touch key indicators, the touch key is heavy, the sound is thick, the light sound is thin; the touch key is high, the sound color is bright, the bottom of the touch key is dark; the touch key speed is light, the sound is light and smart, and the touch key is slow. In summary, the spiritual essence expressed and transmitted by the work itself is the decisive factor in determining which touch-key technique the player calls.

The most basic way of playing a piano can be divided into non-legato, legato and staccato. In the process of playing, the way and skill of touching the keys are different.

3. The best technique for piano touch keys
3.1. Change the touch position of the finger
The finger is the most direct and sensitive contact between the player and the piano. It is the key to the player's ability to transmit the force to the key, so that the string is struck. The contact between the finger and the piano keyboard refers specifically to the transition from the fingertip to the finger pad, adjusting the angle of contact between the finger and the keyboard, and the size of the area where the fingertip and the keyboard match will also be different, in the actual music bullet In the play, it is not very easy to change the traitor of the finger. Figure 2 below shows the optimal touch position for changing the finger touch:

Figure 2. Changing the optimal touch position of a finger according to the melody
In the movement shown in Figure 2 above: If the finger is raised, the fingertip is hard, the key is directly stressed, the force is relatively fast, the tone will be sharper and brighter, and the graininess is obvious. This is especially true in Mozart's sonatas in Figure 2, where the fingertip touch method can often be used. If the finger touches the button horizontally, it actually refers to the abdomen touch button, and the touch button has a large area, and the opposite direction forms a buffer of force, so that the sound quality of the piano is relatively soft and thick. In the transition from the fingertip to the fingertip touch, each subtle change can produce a relatively subtle timbre change, which requires the piano player to make the corresponding adjustment based on the actual experience of the performance.

3.2. Change the touch height of the finger
Increasing the finger touch key plays an important role in the speed of the down key. When the finger is raised, the sound of the finger after the key is touched is bright and grainy; the finger position is low, and the key is relatively smooth and rounded by the smooth keying method. However, it should be emphasized that the elevation involved here is relative to the finger flat keyboard. If the height of the finger touch is too high, it will affect the strength of the touch and the proper relaxation of the player, thus affecting the fast play.

3.3. Change the touch speed of the finger
The speed of the down key determines the brightness of the tone. The quick drop key means that the speed of the finger down button is fast. When the finger bends more obviously, the touch process of the fingertip is relatively short and direct, and the speed of relaxation after the bounce is also fast, and the wrist part encounters the reaction force of the sudden blocked movement energy. Bounce up immediately.

3.4. Change the touch of the finger
Changing the depth of the finger's touch key mainly means that the touch point is on the key face, middle or bottom of the key. In general, the depth of the down button determines the thickness of the tone. The deeper the down button, the thicker and fuller the tone feels; the lighter the down button, the more audible and floating the tone will be. The player should have a stable hand and choose the correct touch position for each track.

4. Conclusion
The piano belongs to a musical instrument with a keyboard system and a relatively fixed chord position. Touch keys are the most important and basic problem in piano performance. Different touch methods directly affect the piano sound quality, performance and depth of music performance. There is a direct connection between sound and power with computer assistance, the force control, and the touch method used when the finger touches the key. Whether the touch key method is reasonable or not, whether it is scientific or not, directly determines the success or failure of the performance.

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