



Optimizing Pianism

Evidence-Based Perspectives

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Newsletter #2 – April 5, 2026

Welcome to the Optimizing Pianism newsletter – the place where science, art and pianism come together.

*Each week, a 5-minute fact for a life-time of better pianism.
No more guessing. No more time-wasting. No more injuries.
Just better tools for making better music!*

TOPIC:

The Piano Tone (Part 1/5)

As mentioned (in Newsletter #1), when a hammer hits the string faster, the resultant piano tone becomes simultaneously louder AND brighter (more higher-frequency harmonics). What opportunity does the pianist have, therefore, to make a tone louder AND duller (or softer AND brighter)? Is it physically possible? Is it worth the attempt?

These are age-old questions which keep getting brushed aside by traditions which claim to know it all, and by pianists who think 'magical stuff' is happening when they touch the key. What gets forgotten, though, during the whole exchange of pedagogical opinions and myths, is that when pianists invest time in chasing this 'stuff', it affects their technique AND their musical thinking. This is to say, it matters, because these same elements are the elements that will eventually facilitate – or obstruct – your pianism from being just good, or actually *world-class amazing*. Obviously, I'm interested in the latter.

Let's stop guessing for a moment and try and understand. The physics of the piano tone will be the topic of the next 5 newsletters. Knowing how it works will liberate your thinking and your pianism.

CONFLICTING TRADITIONS:

“the blow of the finger upon the key should never be audible, but only the music sound” – Freidrich Wieck

“We should not renounce the tone-coloring effects attained by raising the fingers to [and dropping them from] different levels.” – Jozsef Gát

“we cannot distinguish whether the key is pressed down by a finger, by a wad of cotton wool, or by a piece of metal.” – Samuel Feinberg

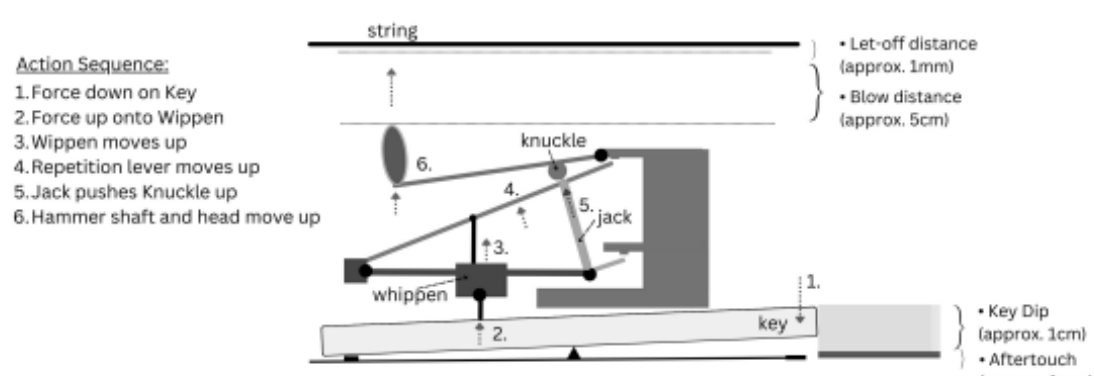
MYTH-BUSTING FACTS:

Traditions aside, 5 noises contribute to the piano tone:

- 1 • Finger hits key surface
- 2 • Key hits key-bed
- 3 • Mechanical noises of the action
- 4 • Hammer hits string
- 5 • String vibration, and its resonance through the entire instrument.

(6. NB - Strings that are already vibrating, or permitted to vibrate because of the dampers being raised, will be able to capture some partial frequencies of other sounds that are occurring at that very moment, eg any of the 5 noises 1-5.)

Today, we will examine noise no.1.



(Picture from *Optimizing Pianism*, p.96.)

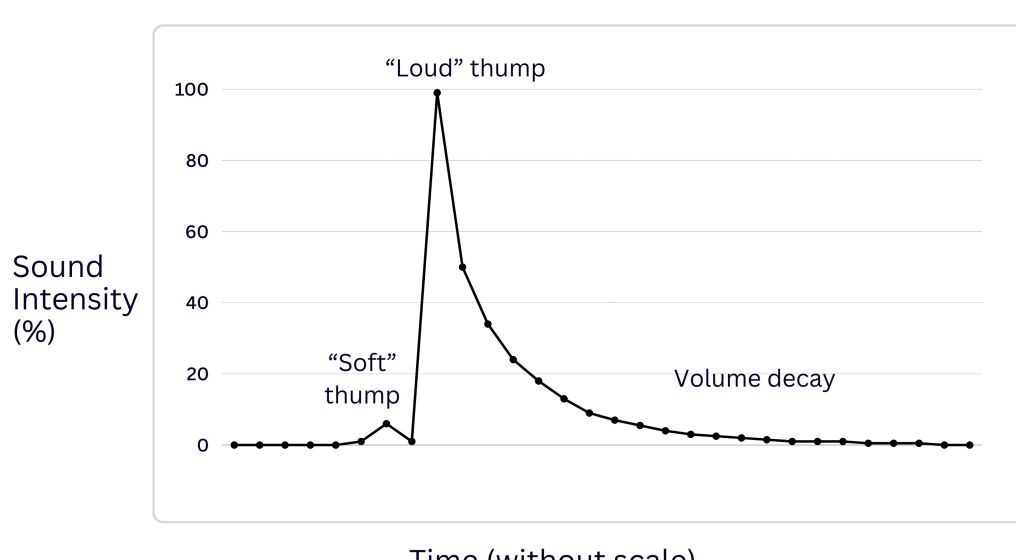
Noise no.1 – Touch surface noises.

What does the science say? Do touch surface noises independently alter the quality of the note being played?

Answer: YES – but only sort of, kind of, and it depends...

These soft percussive sounds are measurable and occur a fraction of a second before the hammer hits the string. (Piano scientists call them *touch precursors* – see diagram below.) They have been shown to alter our perception of the sound quality of the note being struck by *some* listeners, *sometimes*, *IF* the listener is sitting very close to the pianist, or a microphone is capturing these sounds (within a metre or so). Within a typical concert hall, however, they are not heard, unless they are captured by other strings vibrating at the same time (point 6, above).

Theoretically, however, some pianists may find a way to make more or less surface noise while keeping the speed of the key descent the same. If this is achievable, a small change to the frequency spectrum of such touch noises could result, which may alter our perception of the overall piano tone's quality. The picture below, shows how soft these touch noises are, however, in comparison to the massive peak of sound produced by the piano hammer hitting the string.



(Picture from *Optimizing Pianism*, p.61.)

Conclusions

Are these surface noises useful to us as pianists? You decide! Though, I invite you to consider the following: is it worth making adjustments to your technique, to chase such a small, if at all, gain? And, even if it does affect the tone quality on a microscopic scale, what, if any, effect does it have on the OVERALL blend of sounds which is complicated by many other piano tones, of variable note lengths, requiring different note endings, of dynamics, and all needing to occur at different (and expressive) times?

Also, given that the overwhelming majority of the sounds that make up any piano piece are from the sounds of the strings resonating AFTER the brief <0.01s spike in volume when the hammer hits the string, shouldn't we spend more of our time attending to these sounds? Why do pianists not argue more over how to manage them... how to let them resonate better, how to fade them, how to blend them, how not to blend them... Certainly, the expert pianists do.

For me, we seem to be focusing on the sound of the crack of the egg, rather than how the egg best serves the flavour of the omelette. No? Yes?

There's a long way to go. Stay tuned for next week.

best wishes,

Cam

Want more depth?

Read pp.51-63, *The Touch-Tone relationship – Scientists Perspectives* (All references about the physics and noises of the piano tone are listed there.)

Other info

- **Get the book!** *Optimizing Pianism – Evidence-Based Perspectives* ([LINK here](#))
- **Read the previous newsletters** ([LINK here](#))
- **Comments, suggestions or topic requests:** ([Tell me HERE](#))
- **Upcoming Concerts and ticket bookings in Melbourne** ([LINK here](#))
- **A little musical Rachmaninoff love** ❤️ (for his recent birthday – Apr.1) ([LINK here](#))

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