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8 Things Top Practicers Do Differently

By Noa Kageyama, Ph.D. | Mar 11, 2015

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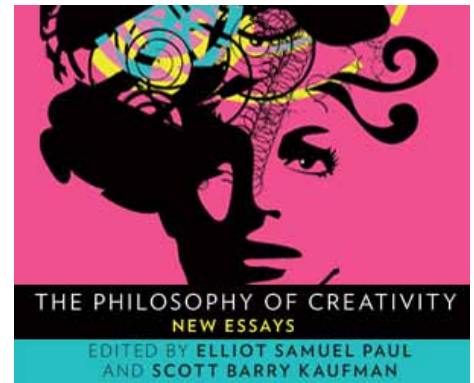
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Synopsis

We've all heard the phrase "practice smarter, not harder," but what does that really mean? What does "smarter" practice actually look like? A study of collegiate piano majors suggests that the key lies in how we handle mistakes.

As my kids were (begrudgingly) practicing their Tae Kwon Do patterns not long ago, I caught myself telling my oldest that he had to do his pattern five times before returning to his video game.

My goal, of course, was not for him to simply plod through the motions of his pattern five times like a pouty zombie, but to do it once with good form and commitment. But the parent in me finds it very reassuring to know that a certain number of repetitions has gone into something. Beyond the (erroneous) assumption that this will somehow automagically solidify his skills, it feels like a path to greater discipline, and a way to instill within my kids some sort of work ethic that will serve them well in the future.

It's true that some degree of time and repetition is necessary to develop and hone our skills, of course. But we also know on some intuitive level that to maximize gains, we ought to practice "smarter, not harder."

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But what does that really mean anyway? What exactly do top practicers do differently?

Pianists learning Shostakovich

A group of researchers led by [Robert Duke](#) of The University of Texas at Austin conducted a [study](#) several years ago to see if they could tease out the specific practice behaviors that distinguish the best players and most effective learners.

Seventeen piano and piano pedagogy majors agreed to learn a 3-measure passage from [Shostakovich's Piano Concerto No. 1](#). The passage had some tricky elements, making it too difficult to sight read well, but not so challenging that it couldn't be learned in a single practice session.

The setup

The students were given two minutes to warm up, and then provided with the 3-measure excerpt, a metronome, and a pencil.

Participants were allowed to practice as long as they wanted, and were free to leave whenever they felt they were finished. Practice time varied quite a bit, ranging from 8 1/2 minutes to just under 57 minutes.

To ensure that the next day's test would be fair, they were specifically told that they may NOT practice this passage, even from memory, in the next 24 hours.

24 hours later...

When participants returned the following day for their test, they were given 2 minutes to warm up, and then asked to perform the complete 3-measure passage in its entirety, 15 times without stopping (but with pauses between attempts, of course).

Each of the pianists' performances were then evaluated on two levels. Getting the right notes with the right rhythm was the primary criteria, but the researchers also ranked each of the pianists' performances from best to worst, based on tone, character, and expressiveness.

That led to a few interesting findings:

- 1 Practicing longer didn't lead to higher rankings.
- 2 Getting in more repetitions had no impact on their ranking either.
- 3 The number of times they played it correctly in practice also had no bearing on their ranking. (wait, what?!)

What *did* matter was:

- 1 How many times they played it *incorrectly*. The more times they played it incorrectly, the worse their ranking tended to be.
- 2 The *percentage* of correct practice trials did seem to matter. The greater the *proportion* of correct trials in their practice session, the higher their ranking tended to be.

The top 8 strategies

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Three pianists' performances stood out from the rest, and were described as having "more consistently even tone, greater rhythmic precision, greater musical character (purposeful dynamic and rhythmic inflection), and a more fluid execution."

Upon taking a closer look at the practice session videos, the researchers identified 8 distinct practice strategies that were common to the top pianists, but occurred less frequently in the practice sessions of the others:

1. Playing was hands-together early in practice.
2. Practice was with inflection early on; the initial conceptualization of the music was with inflection.
3. Practice was thoughtful, as evidenced by silent pauses while looking at the music, singing/humming, making notes on the page, or expressing verbal "ah-ha"s.
4. Errors were preempted by stopping in anticipation of mistakes.
5. Errors were addressed immediately when they appeared.
6. The precise location and source of each error was identified accurately, rehearsed, and corrected.
7. Tempo of individual performance trials was varied systematically; logically understandable changes in tempo occurred between trials (e.g. slowed things down to get tricky sections correct).
8. Target passages were repeated until the error was corrected and the passage was stabilized, as evidenced by the error's absence in subsequent trials.

The top 3 strategies

Of the eight strategies above, there were three that were used by *all three* top pianists, but rarely utilized by the others. In fact, only two other pianists (ranked #4 and #6) used more than one:

6. The precise location and source of each error was identified accurately, rehearsed, and corrected.
7. Tempo of individual performance trials was varied systematically; logically understandable changes in tempo occurred between trials (e.g. slowed things down to get tricky sections correct; or speeded things up to test themselves, but not too much).
8. Target passages were repeated until the error was corrected and the passage was stabilized, as evidenced by the error's absence in subsequent trials.

What's the common thread that ties these together?

The researchers note that the most striking difference between the top three pianists and the rest, was *how they handled mistakes*. It's not that the top pianists made fewer mistakes in the beginning and simply had an easier time learning the passage.

The top pianists made mistakes too, but they managed to correct their errors in such a way that helped them avoid making the same mistakes over and over, leading to a higher proportion of correct trials overall.

And one to rule them all

The top performers utilized a variety of error-correction methods, such as playing with one hand alone, or playing just part of the excerpt, but there was one strategy that seemed to be the most impactful.

Strategically slowing things down.

After making a mistake, the top performers would play the passage again, but slow down or hesitate – without stopping – right before the place where they made a mistake the previous time.

This seemed to allow them to play the challenging section more accurately, and presumably coordinate the correct motor movements at a tempo they could handle, rather than continuing to make mistakes and failing to identify the precise nature of the mistake, the underlying technical problem, and what they ought to do differently in the next trial.

The one-sentence summary

"Success does not consist in never making mistakes but in never making the same one a second time." -George Bernard Shaw

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