

Actually, practice doesn't always make perfect — new study

By Valerie Strauss



(Photo by Matt McClain for The Washington Post)

How many times have you heard that “practice makes perfect?” Well, a new meta-analysis of dozens of previous studies shows that it is not always true. In this post, Alfie Kohn explains and talks about the consequences of this when it comes to education. Kohn is the author of 13 books about education and human behavior, including “The Schools Our Children Deserve,” “The Homework Myth,” and “The Myth of the Spoiled Child: Challenging the Conventional Wisdom About Children and Parenting.” He lives (actually) in the Boston area and (virtually) at www.alfiekohn.org.

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We’ve long been eager to believe that mastery of a skill is primarily the result of how much effort one has put in. Extensive practice “is probably the most reasonable explanation we have today not only for success in any line, but even for genius,” said the ur-behaviorist John B. Watson almost a century ago.

In the 1990s K. Anders Ericsson and a colleague at Florida State University reported data that seemed to confirm this view: What separates the expert from the amateur, a first-rate musician or chess player from a wannabe, isn't talent; it's thousands of hours of work. (Malcolm Gladwell, drawing from but misrepresenting Ericsson's research — much to the latter's dismay — announced the magic number was ten thousand hours.)

It's daunting to imagine putting in that kind of commitment, but we're comforted nonetheless by the idea that practice is the primary contributor to excellence.

That's true, I think, for three reasons:

1. Common sense: It seems obvious that the more time you spend trying to get better at something, the more proficient you'll become. That's why so many educators continue to invoke the old phrase "time on task," which, in turn, drives demands for longer school days or years. Common sense, however, isn't always correct. Researchers have found that only when "achievement" is defined as rote recall do we discover a strong, linear relationship with time. When the focus is on depth of understanding and sophisticated problem solving, time on task doesn't predict outcome very well at all — either in reading or math.

2. Protestant work ethic: Many people simply don't like the idea that someone could succeed without having paid his or her dues — or, conversely, that lots of deliberate practice might prove fruitless. Either of these possibilities threatens people's belief in what social psychologists call a "just world." This sensibility helps to explain why copious homework continues to be assigned despite dubious evidence that it provides any benefit (and zero evidence that it's beneficial in elementary school): We just don't want those kids goofing off, darn it — not in the evening and not even during the summer! Hence the recent enthusiasm for "grit," which is basically a repackaging of age-old exhortations to stick with whatever you've been told to do. (Indeed, Ericsson collaborated with grit maven Angela Duckworth on a study of spelling bee champions.)

3. Nurture over nature: "Innate? Necessarily so!" is what we've heard for centuries. Given the tawdry history of biological reductionism, which usually manages to rationalize current arrangements of power as being due to the natural superiority of privileged groups, is it any wonder we remain leery of attributing success to inherited talent? It's more egalitarian to declare that geniuses are made, not born. Indeed, that skepticism is bolstered by evidence (from Carol Dweck and others) indicating that students are more likely to embrace learning if they believe their performance results from effort, something

under their control, rather than from a fixed level of intelligence that they either possess or lack.

For many of us, then, Ericsson's conclusion has been deeply reassuring: Practice hard and you'll do well. But along comes a brand-new meta-analysis, a statistical summary of 157 separate comparisons in 88 recent studies, that finds practice actually doesn't play nearly as significant a role as we'd like to think.

"The evidence is quite clear that some people do reach an elite level of performance without copious practice, while other people fail to do so despite copious practice," wrote Brooke Macnamara, David Hambrick, and Frederick Oswald in *Psychological Science*. In fact, they calculated that, overall, the amount of deliberate practice in which someone engages explains only 12 percent of the variance in the quality of performance. Which means 88 percent is explained by other factors.

But what other factors? It's common to assume that if practice matters less than we thought, then inborn ability matters more — as if there are only two contributors to excellence and they're reciprocally related. The *New York Times* headline for an article describing the new meta-analysis captured this assumption by reversing an old joke: "How Do You Get to Carnegie Hall? Talent."

That's not necessarily true, however. The question posed by Macnamara and her colleagues was appropriately open-ended: "We have empirical evidence that deliberate practice, while important, ... does not largely account for individual differences in performance. The question now is what else matters." And there are many possible answers. One is how early in life you were introduced to the activity — which, as the researchers explain, appears to have effects that go beyond how many years of practice you booked. Others include how open you are to collaborating and learning from others, and how much you enjoy the activity.

That last one — intrinsic motivation — has a huge empirical base of support in workplaces, schools, and elsewhere. We've long known that the pleasure one takes from an activity is a powerful predictor of success. For example, one group of researchers tried to sort out the factors that helped third and fourth graders remember what they had been reading. They found that how interested the students were in the passage was thirty times more important than how "readable" the passage was.

All of these factors overlap and serve as catalysts for one another, which means that even if practice does predict success to some degree, that doesn't mean it caused the success. Maybe the right question to ask is: Why do some people decide to practice a lot in the first place? Could it be because their first efforts proved mostly successful? (That's a useful reminder to avoid romanticizing the benefits of failure.) Or, again, do they keep at it because they get a kick out of what they're doing? If that's true, then practice, at least to some extent, may be just a marker for motivation. Of course, natural ability probably plays a role in fostering both interest and success, and those two variables also affect each other.

But once we've introduced the possibility that interest plays an important role, we'd have to ask "Interest at what?" It doesn't make much sense to talk about the contribution of practice in the abstract. A lot depends on the task, among other things. Sure enough, Macnamara and her colleagues found, as is often the case with meta-analyses, that you can slice up the results by looking at an assortment of "moderator" variables — factors that affect the strength of the correlation between this and that.

For starters, the importance of practice depends on how investigators arrived at their figures for how much time people spent on their activities. Practice seemed to matter more in studies where the estimates were self-reported, as in Ericsson's original research with musicians. By contrast, when the hours were logged, and the estimates presumably more reliable, the impact of practice was much diminished. How much? It accounted for a scant 5 percent of the variance in performance. The better the study, in other words, the less of a difference practice made.

Mostly, though, it depends on the domain. Practice explained 26 percent of the variance in achievement for games, 21 percent in musical accomplishment, 18 percent in sports, 4 percent in college grades, and less than 1 percent in professional success. What's true of time on task, then, is true of practice — which isn't surprising given how closely the two concepts are related. It depends on what you're doing. When the task is more complicated and open-ended, a lot of factors come into play that collectively swamp the effect of how much work you put in.

One last point. Even if Ericsson's conclusion, that expert-level performance can be explained primarily by thousands of hours of practice, had been supported rather than up-ended by this new review of research, it never had the relevance to education that some people have claimed. It never supported the value of giving students lots of practice problems. Why? First, because we can't simply

assume that whatever promotes success in activities like music or chess also applies to, say, math or language arts.

Second, and more important, Ericsson was assessing the relative contribution of practice and talent. He didn't look at whether the teacher's goal was to reinforce an automatic response (borrow from the tens place, restate your conclusion in the last paragraph) as opposed to helping students make sense of ideas. In education — as opposed to, say, chess — everything depends on the kind of learning we want. Practice has much less of a role to play in promoting deep understanding than it does in expediting the memorization of algorithms or the reinforcement of behaviors. The Ericsson finding never really proved relevant to more meaningful learning, then — even back when that finding appeared to be true.

We may have to face the fact that our common-sense beliefs about excellence, or what we think ought to be the case about the importance of hard work, aren't necessarily true. But we can take comfort from knowing that less of a role for practice doesn't just mean that our destinies are fixed at birth.

Source; <http://www.washingtonpost.com/blogs/answer-sheet/wp/2014/07/25/actually-practice-doesnt-always-make-perfect-new-study/>