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In her blog [Managing Product Development](#), Johanna Rothman shares some thoughts on why best practices don't always guarantee success. It's a solid question: How do you tailor other organizations' best practices to best meet the needs of your company and work? While it may be true that there are no shortcuts to anywhere worth going, there certainly are ways of needlessly prolonging the journey. We often waste lots of time because nobody ever taught us the most effective and efficient way to practice. Whether it's learning how to code, improving your writing skills, or playing a musical instrument, practicing the right way can mean the difference between good and great. You have probably heard the old joke about the tourist who asks a cab driver how to get to Carnegie Hall, only to be told: "Practice, practice, practice!" I began playing the violin at age two, and for as long as I can remember, there was one question which haunted me every day. Am I practicing enough? What Do Performers Say? I scoured books and interviews with great artists, looking for a consensus on practice time that would ease my conscience. I read an interview with Rubinstein, in which he stated that nobody should have to practice more than four hours a day. He explained that if you needed that much time, you probably weren't doing it right. And then there was violinist Nathan Milstein who once asked his teacher Leopold Auer how many hours a day he should be practicing. Auer responded by saying "Practice with your fingers and you need all day. Practice with your mind and you will do as much in 1 1/2 hours." Even Heifetz indicated that he never believed in practicing too much, and that excessive practice is "just as bad as practicing too little!" He claimed that he practiced no more than three hours per day on average, and that he didn't practice at all on Sundays. It seemed that four hours should be enough. So I breathed easy for a bit. And then I learned about the work of Dr. K. Anders Ericsson. What Do Psychologists Say? When it comes to understanding expertise and expert performance, psychologist Dr. Ericsson is perhaps the world's leading authority. His research is the basis for the "10,000-hour rule" which suggests that it requires at least ten years and/or 10,000 hours of deliberate practice to achieve an expert level of performance in any given domain – and in the case of musicians, more like 15-25 years in order to attain an elite international level. Those are some pretty big numbers. So large, that at first I missed the most important factor in the equation: Deliberate practice. Meaning, that there is a specific type of practice that facilitates the attainment of an elite level of performance. And then there's the other kind of practice that most of us are more familiar with, Mindless Practice. Have you ever observed a musician (or athlete, actor, trial attorney) engage in practice? You'll notice that most practice resembles one of the following distinct patterns. 1. Broken record method: This is where we simply repeat the same thing over and over. Same tennis serve. Same passage on the piano. Same powerpoint presentation. From a distance it might look like practice, but much of it is simply mindless repetition. 2. Autopilot method: This is where we activate our autopilot system and coast. Recite our sales pitch three times. Play a round of golf. Run through a piece from beginning to end. 3. Hybrid method: Then there's the combined approach. For most of my life, practicing meant playing through a piece until I heard something I didn't like, at which point I'd stop, repeat the passage over and over until it started to sound better, and then resume playing until I heard the next thing I wasn't pleased with, at which point I'd repeat the whole process over again. Three Problems Unfortunately, there are three problems with practicing this way. 1. It's a waste of time: Why? For one, very little productive learning takes place when we practice this way. This is why you can "practice" something for hours, days, or weeks, and still not improve all that much. Even worse, you are actually digging yourself a hole, because what this model of practicing does is strengthen undesirable habits and errors, increasing the likelihood of more consistently inconsistent performances. This also makes it more difficult to clean up these bad habits as time goes on – so you are essentially adding to the amount of future practice time you will need in order to eliminate these undesirable tendencies. To quote a saxophone professor I once worked with: "Practice doesn't make perfect, practice makes permanent." 2. It makes you less confident: In addition, practicing mindlessly lowers your confidence, as a part of you realizes you don't really know how to produce the results you are looking for. Even if you have a fairly high success rate in the most difficult passages, there's a sense of uncertainty deep down that just won't go away. Real on-stage confidence comes from (a) being able to nail it consistently, (b) knowing that this isn't a coincidence but that you can do it the correct way on demand, because (c) you know precisely why you nail it or miss it – i.e. you have identified the key technical or mechanical factors that are necessary to play the passage perfectly every time. 3. It is mind-numbingly dull: Practicing mindlessly is a chore. We've all had well-meaning parents and teachers tell us to go home and practice a certain passage x number of times, or to practice x number of hours, right? But why are we measuring success in units of practice time? What we need are more specific results-oriented outcome goals – such as, practice this passage until it sounds like XYZ, or practice this passage until you can figure out how to make it sound like ABC. Deliberate Practice So what is the alternative? Deliberate, or mindful practice is a systematic and highly structured activity, that is, for lack of a better word, more scientific. Instead of mindless trial and error, it is an active and thoughtful process of hypothesis testing where we relentlessly seek solutions to clearly defined problems. Deliberate practice is often slow, and involves repetition of small and very specific sections of a skill instead of just playing through. For example, if you were a musician, you might work on just the opening note of a solo to make sure that it "speaks" exactly the way you want, instead of playing the entire opening phrase. Deliberate practice also involves monitoring one's performance - in real-time and via recordings - continually looking for new ways to improve. This means being observant and keenly aware of what happens, so that you can tell yourself exactly what went wrong. For instance, was the first note note sharp? Flat? Too loud? Too soft? Too harsh? Too short? Too long? Let's say that the note was too sharp and too long with not enough of an attack to begin the note. Well, how sharp was it? A little? A lot? How much longer was the note than you wanted it to be? How much more of an attack did you want? Ok, the note was a little sharp, just a hair too long, and required a much clearer attack in order to be consistent with the marked articulation and dynamics. So, why was the note sharp? What did you do? What do you need to do instead to make sure the note is perfectly in tune every time? How do you ensure that the length is just as you want it to be, and how do you get a consistently clean and clear attack to begin the note so it begins in the right character? Now, let's imagine you recorded each trial repetition, and could listen back to the last attempt. Does that combination of ingredients give you the desired result? Does that combination of elements convey the mood or character you want to communicate to the listener as effectively as you thought it would? Does it help the listener experience what you want them to feel? If this sounds like a lot of work, that's because it is. Which might explain why few take the time to practice this way. To stop, analyze what went wrong, why it happened, and how they can produce different results the next time. Simple though it may sound, it took me years to figure this out. Yet it remains the most valuable and enduring lesson I learned from my 23 years of training. In the dozen or so years since I put down my violin, the principles of deliberate practice have remained relevant no matter what skill I must learn next. Be it the practice of psychology, building an audience for a blog, parenting, or making the perfect smoothie, how I spend my practice time remains more important than how much time I spend practicing. How to Accelerate Skill Development Here are the five principles I would want to share with a younger version of myself. I hope you find something of value on this list as well. 1. Focus is everything: Keep practice sessions limited to a duration that allows you to stay focused. This may be as short as 10-20 minutes, and as long as 45-60+ minutes. 2. Timing is everything, too: Keep track of times during the day when you tend to have the most energy. This may be first thing in the morning, or right before lunch. Try to do your practicing during these naturally productive periods, when you are able to focus and think most clearly. What to do in your naturally unproductive times? I say take a guilt-free nap. 3. Don't trust your memory: Use a practice notebook. Plan out your practice, and keep track of your practice goals and what you discover during your practice sessions. The key to getting into "flow" when practicing is to constantly strive for clarity of intention. Have a crystal clear idea of what you want (e.g. the sound you want to produce, or particular phrasing you'd like to try, or specific articulation, intonation, etc. that you'd like to be able to execute consistently), and be relentless in your search for ever better solutions. When you stumble onto a new insight or discover a solution to a problem, write it down! As you practice more mindfully, you'll begin making so many micro-discoveries that you will need written reminders to remember them all. 4. Smarter, not harder: When things aren't working, sometimes we simply have to practice more. And then there are times when it means we have to go in a different direction. I remember struggling with the left-hand pizzicato variation in Paganini's 24th Caprice when I was studying at Juilliard. I kept trying harder and harder to make the notes speak, but all I got was sore fingers, a couple of which actually started to bleed (well, just a tiny bit). Instead of stubbornly persisting with a strategy that clearly wasn't working, I forced myself to stop. I brainstormed solutions to the problem for a day or two, and wrote down ideas as they occurred to me. When I had a list of some promising solutions, I started experimenting. I eventually came up with a solution that worked, and the next time I played for my teacher, he actually asked me to show him how I made the notes speak so clearly! 5. Stay on target with a problem-solving model: It's extraordinarily easy to drift into mindless practice mode. Keep yourself on task using the 6-step problem solving model below. Define the problem. (What result did I just get? What do I want this note/phrase to sound like instead?) Analyze the problem. (What is causing it to sound like this?) Identify potential solutions. (What can I tweak to make it sound more like I want?) Test the potential solutions and select the most effective one. (What tweaks seem to work best?) Implement the best solution. (Reinforce these tweaks to make the changes permanent.) Monitor implementation. (Do these changes continue to produce the results I'm looking for? Make Your Time Count! It doesn't matter if we are talking about perfecting violin technique, improving your golf game, becoming a better writer, improving your marketing skills, or becoming a more effective surgeon. Life is short. Time is our most valuable commodity. If you're going to practice, you might as well do it right. The Most Valuable Lesson I Learned From Playing the Violin | Creativity Post Noa Kageyama is a Juilliard-trained violinist turned sport & performance psychologist. He specializes in teaching performing artists how to perform up to their full abilities under pressure. Image remixed from dicogm (Shutterstock) and tovovan (Shutterstock). Want to see your work on Lifehacker? Email Tessa.





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