

## Perfect Practice

I sometimes imagine Harrison Ford as Indiana Jones hurling himself through mazes and death defying stunts on a quest to find that ever-elusive treasure. After traveling down many promising but misleading paths, he finally emerges only to find himself isolated in a practice room, staring into a mirror. As he contemplates what this means for humankind, or at least for his ability to play the violin in tune, he comes face to face with a musician's equivalent to the Holy Grail. What is Perfect Practice?

We've all heard the saying a million times: "Practice makes Perfect" – but does it? As I am sure you can attest, if it were so, many more people we know would be perfect. In fact, the never-ending quest to learn how to practice better stems from the realization that spending time practicing is not enough. What we do in the practice room matters. A truer statement than the saying above is that "Practice makes Permanent." In order to become perfect, therefore, one needs to practice perfectly!

To understand the essence of this task, it is helpful to begin with a definition. Practicing is the act of learning, honing, and reinforcing habits. Everything done during practicing must relate to one of those three activities, or else you are simply wasting time.

In simpler terms, practicing can be divided into two fundamental stages: Working Out and Repetition. The "working out" stage relates to learning and honing. The intent is to work out all of the problems and refine the solutions. Mistakes are a necessary part of problem solving and refining solutions. Think about how many times you must have fallen when you first learned to walk. Rather than continuing to fall every time, somehow you negotiated your way through the tangled web of balance and developing muscles, until you refined the process for yourself. Practicing, like learning to walk, is most effective when you work in that place just beyond your capabilities, so the challenge of what you cannot do defines your approach to figuring it out.

Once you have figured out the solution and have your "perfect" version, then repetition becomes important. The "repetition" stage is about reinforcing the perfect version, increasing the odds that you will deliver the perfect version when you need it. No, I did not just suggest that you hone your practice habits in a casino. It is simple math. If you play something one time correctly, and once incorrectly, you have 50% odds that the next time you play it will be the correct version. Now imagine that the next two times you play it correctly. Three out of four correct is 75% odds – a few more of the correct version and you are well on your way!

Now let's fast forward for a moment. Say you have played something 100 times, and have the original 50% odds - 50 correct versions, and 50 incorrect. Now upon playing it two more times correctly, what happened to the odds? They barely moved – 51%! Think about how many more times you now need to play it correctly to get the odds in your favor! All of this is to say, that while mistakes are a necessary part of the "working out"

stage, you want to be very efficient so you do not inadvertently create a situation that seems insurmountable to overcome. At the same time, mistakes are extremely detrimental during the “repetition” stage. You want to repeat only the “perfect” version over and over again.

If the math turned some of you off, perhaps science will persuade you. Allow me to introduce you to your brain. Author Daniel Coyle was extremely effective in explaining what happens in the brain as it relates to practicing in his insightful book, The Talent Code (Bantam Dell, 2009). He describes how developing skill or learning and honing new tasks produces myelin in the brain. Myelin functions as insulation for nerve fibers that enable transmission of nerve impulses. The first time that you attempt something, a nerve impulse fires creating a new slow and arduous pathway in your brain to bring about that result. As you repeat that activity, myelin grows around that nerve impulse, insulating it and increasing its signal strength, speed, and accuracy. The more that impulse is fired, the more myelin develops, optimizing and making that activity stronger, faster, and more fluent. Daniel Coyle has rewritten our perfect practice statement yet again. He writes, “Practice makes Myelin, and Myelin makes Perfect!”

So back to Indiana Jones staring into that practice room mirror – we have a sense now how he got here, but the question remains, what series of maneuvers are necessary to leave this place fulfilled? Here are three approaches that are sure to help you on the path to perfect practice: practicing exposed, speeding-up preparations, and intelligent patience.

Practicing exposed means uncovering and working on the foundation upon which the music is built, both technically and musically. This type of practicing is not intended to sound like the final product. It is to be an examination of the nuts and bolts, the gears and machinery, if you will. Imagine if the final result looks like a clock that keeps impeccable time, then practicing exposed is opening the clock-face and working on the internal mechanisms. You may need to take a part out, dust it off and oil it up, or you may need to calibrate how the parts work together. Eventually, after the parts are tuned up and returned to the clock, you begin to close the clock-face. Things start to resemble the final product, until eventually the clock-face is fully closed. Keep in mind that while the clock face may be closed, it is essential that all of the mechanisms inside are still working for the clock to tell time. The last thing in the world you want is for the clock-face to be closed and all of the internal mechanisms to fall apart. This type of practicing is used both when learning something new, and also as maintenance at every stage of learning and performing.

Even for seasoned practitioners who have mastered the art of practicing exposed, one of the great challenges in practicing is learning how to speed things up and play faster. The key to playing faster is faster “preparations.” A preparation is doing all of the things necessary for an event before it happens. By identifying preparations, they can be made more efficient. The sooner the preparation is complete, the sooner you can play. Regardless of tempo, it is necessary for the preparation to occur before the event. As you increase tempo, the preparation and event tend to get closer together. When you reach

that tempo that finally becomes unplayable with the quality you desire, it is usually because the preparation and event have gotten so close together that the event may be happening before the preparation is complete. This problem can be solved through slow practice, enabling you to refine and quicken the preparation while slowing down the event. The farther apart that you execute the preparation from the event, the better off you will be as the tempo increases. Take for example repeated down-bows that involve retaking the bow. In this instance the preparation is the retake plus catching the string before the next stroke. The key is to exaggerate the difference in speeds of the preparation and the event. Practice with as slow a bow speed as possible during the event, and then as fast a retake plus catching the string as possible. By doing this exaggeratedly, you will build in more space between the preparation and event so when you increase the tempo, there remains plenty of room for them to get closer without overlapping.

Perhaps the most urgent question that affects our approach when we get into the practice room is how long will it take to learn something new? The answer to this depends on a number of variables, including whether this regards a new habit or a new application of a habit already well established. There is nothing more frustrating for someone already low on patience to be told, "Be patient!" At the same time, for very patient people, complacency can often set in, marginalizing progress. This is where intelligent patience is essential.

Intelligent patience requires perspective on the process and understanding where you are in it. For the person trying to develop a new habit in place of an old one, a two-jar analogy can be helpful. Imagine that you have one jar filled up with all of the times you have played with the old habit. Now you have a new jar that is empty that you are beginning to fill with the new habit. The answer to how long it will take to establish the new habit in place of the old is that you must fill up the new jar until it exceeds the level of the old jar. Obviously, the sooner you close the old jar and only fill the new one, the sooner you will achieve your goal. The reality for most people, however, is that even with the best of intentions and great work habits in the practice room, often you may be required to play in demanding circumstances where you cannot monitor which jar is being filled, like playing in orchestra rehearsal for example. You may end up inadvertently filling the old jar. It is important to be realistic about this circumstance, and intelligent patience will give you the perspective to stick to it long enough to succeed. For the person applying an established habit to a new situation, intelligent patience suggests that you have an extremely efficient "working out" stage, and begin almost immediately with the "repetition" stage.

It goes without saying that in my imagination the reason Indiana Jones' journey led him to a practice room staring back at himself in a mirror is because the answer to perfect practice is found within us. We are in charge, and the better we understand how we work and what the process is, the sooner we will find that place where practicing is efficient, productive, and fulfilling. Live well and practice perfect!