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The Deliberate Pilot

Tips for reaching an expert level of skill

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Expert Level Aviating: Deliberate Practice

by Matthew McDaniel

A viation, like most activities, requires a certain level of expertise. However, it can also be pursued at a wide variety of levels, from recreational for a few dozen flight hours a year, to professional for a thousand flight hours (or more) per year. Thus, “expert” is a loaded term that can mean a variety of things depending on the context, the audience and the pilot in question. I would argue that aviation, in the broadest sense, is a topic and activity where becoming an expert in all matters is absolutely impossible. However, reaching an expert level of knowledge and skill in your particular aviation niche is both attainable and common.



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“ ... expert level performance in almost any activity ... comes from expert level practice.”





Research indicates that being a true expert is less about natural abilities and more related to how consistently and deliberately you practice to improve.

(Courtesy: King Air Academy)

Does practice really make perfect?

How many times have you watched a star athlete, an air show aerobatic pilot or maybe a world-renowned musician perform and afterward commented, “Whoa, that person is amazingly talented!”? It’s a common reaction anytime we witness expert level displays of skill. But is it accurate? Is talent predominantly responsible? Until very recently, most of us would have said yes (at least in a qualified sense). Even in the recent past, scientists agreed with the commonly held belief that expert level performance was tied closely with natural ability. As a result, from a psychological perspective, scientific research into discovering what really creates an expert was delayed.

Many people refuse to pursue a long-held dream because they think they just aren’t cut out for it or due to a self-perceived lack of talent. Others see themselves as able to pursue something as a hobby or for recreation, but never at an expert level because they “lack the natural talent” of an expert. New research has found that outside of obvious physical or genetic advantages (height in some sports, for example), this simply doesn’t reflect the reality of most “experts.”

Few pilots would argue that the way we initially learn any skill and get better at it is via “practice-practice-practice.” As a 30-plus-year flight instructor, one of my favorite pieces of advice to clients has been, “No one ever became good at crosswind landings by avoiding crosswind landings.” Yet, as with so many things in life, quality can be just as important as quantity. Indeed, the most recent scientific research indicates that expert level performance in almost any activity comes not from natural talent or even constant repetition. Rather, it comes from expert level practice. Practice that is targeted, meaningful and knowledge/skill expanding: deliberate practice.

Not only that, the research goes on to say that the difference between expert performers and “normal” adults of similar age is a lifelong pursuit of deliberate efforts (in both education and practice) to improve in their specific area of expertise. So, who then are the true experts? Those with almost unheard of levels of natural abilities in a given area? More likely, it is those who maintain and practice at high levels consistently, over years or decades; always striving to not only maintain their performance, but improve. The research indicates it is rarely about or as simple as what you are born with. Instead, it is more about how consistently and deliberately you practice to improve.

Being Deliberate

The experts are not just authorities within their given domain. They are also experts at developing and maintaining high levels of practice which help improve their performance. Many are likely experts at developing such techniques on their own. Others, however, may be experts at surrounding themselves with exceptional coaches, instructors or practice partners who help them to improve by pushing them into higher levels of practice and/or exercises designed to maintain current knowledge/skill levels and to improve and expand abilities, as well. When applied properly and consistently, deliberate practice can overcome differences in cognitive abilities and even in physical attributes.

The famous World War II fighter pilot, turned test pilot, turned world-renowned air show pilot Robert A. "Bob" Hoover is a good example. He told the story many times of overcoming two issues in his early flight training. The first was airsickness. In his earliest lessons he would become physically ill within minutes of leaving the ground. He overcame this by simply persevering. He'd endure the airsickness long enough to return for landing, managing each time to stretch his time between takeoff and becoming ill just a few additional minutes over the previous flight. In time, he completely overcame his airsickness. His second was a deep fear of aerobatic

flight. Yet, his goal of becoming a fighter pilot could never come to fruition without first becoming skilled at aerobatic flight maneuvers. He overcame this fear by putting himself into aerobatic flight attitudes while flying solo, knowing that once into the maneuver, he'd have no choice but to fly himself out of it. In short order, he had mastered aerobatics at levels even his instructors could not match. Years later, he'd be quick to admit it probably wasn't the safest way to learn aerobatics. What it was, however, was deliberate practice used to overcome physical and psychological limitations that, eventually, led to his ability to perform at expert levels.

Can Deliberate Be Fun?

The answer to that question is a definite "maybe." Practice in a deliberate fashion is not the same as work, nor play, nor the simple act of repeating a task ad nauseam. Being deliberate in one's practice requires effort that will likely reach beyond what most consider "fun." It will also come with little or no monetary reward. In fact, it will likely cost a practicing pilot in time, aircraft operating expenses, instructor fees and added maintenance costs. So, most psychological experts would say that it's not inherently pleasurable. Yet, that doesn't mean it has to lack any level of enjoyment.

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Deliberate practice can certainly be designed to be fun. Within aviation, doing so will likely require flexibility. For example, for IFR pilots, one form of deliberate practice might be to fly and practice approach procedures in actual instrument meteorological conditions (IMC) down to or near published approach minimums. Many such pilots will even find such practice enjoyable. Be sure to take an appropriately experienced and proficient CFII along, as conditions and your own proficiency dictate. Patience and flexibility will be required to wait for such conditions to develop. Schedules will need to be flexible enough to take advantage of such conditions when it is safe to do so. When the stars align and these types of practice sessions can become reality, my experience is that both trainer and trainee benefit. They come away feeling like they learned something, honed their skills, challenged themselves and even had fun in the process.

Deliberate practice that is easier to schedule might include practice flights where you deem the autopilot off limits. From first takeoff to final landing, you practice hand flying. Through maneuvers or approach procedures (or both), hand flying exclusively will absolutely present opportunities to increase division of attention, multi-tasking and aircraft control skills. Conversely, flights where the autopilot is used to practice fully coupled departure, arrival and approach procedures can also be a form of deliberate practice, where improving your

FURTHER READING

The author credits the following sources. The information they contain is far more in-depth than what is presented in this article and if you are interested in the topic, reference them, as well.

"The Role of Deliberate Practice in the Acquisition of Expert Performance" by K. Andres Ericsson

"Bounce: Mozart, Federer, Picasso, Beckham, and the Science of Success" by Matthew Syed

"Talent is Overrated: What Really Separates World-Class Performers from Everyone Else" by Geoffrey Colvin

"Outliers: The Story of Success" by Malcolm Gladwell

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automation management is the goal. In either case, using airports, instrument procedures (IAPs) or practice areas you don't use regularly will benefit your learning more than using the same places and IAPs you are already deeply familiar with. Either can be fun by simply breaking up the monotony of your routine practice and making it more deliberate in nature.

Combining deliberate practice with adventure flying can also be a way to inject fun into the equation. However, I caution against relying too much on combining adventures and training/practice. Such flying often involves long cross-country flight segments that are filled mostly with low-key cruise flight that is not overly beneficial. It can be, in fact, almost the antithesis of deliberate practice. Designing deliberate practice sessions requires a bit more creativity than simply saying, "I've always wanted to go to [insert destination]. Let's do that today and make it into a lesson."

Defining Deliberate Practice

According to K. Andres Ericsson, the late Swedish psychologist and professor who researched the psychological nature of expertise and human performance, deliberate practice will have four essential components:

1. The practicer must be motivated to attend to the task while truly exerting effort to improve performance.

2. The task needs to be designed specifically to take into account preexisting knowledge so that the task can be correctly understood from the beginning or after a brief period of instruction.
3. The practicer needs to be able to receive immediate and informative feedback. One must know and understand the results of their performance.
4. Repetition of the same or similar tasks is required to achieve expert level results.

Within aviation, the use of skilled instructors can help achieve elements #2 and #3 (and #4, to a lesser extent). The practicer is solely responsible for bringing motivation – element #1 – to the table and for ensuring they consistently adhere to repetition, element #4. *Your* contribution to successful deliberate practice cannot be overstated. You cannot allow yourself to be an excuse maker.

It is how you practice that matters the most. Your practice must challenge you. Repetition is important, but once a task is mastered, that repetition must be moved up a notch so that you are not repeatedly doing what you already know how to do at a level below what you are capable of. So a keen self-understanding of your weaknesses and strengths is critical. From that, invent tasks to address weaknesses and to further develop strengths.



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It's Not a Pylon Race. It's a Long Cross-Country.

Be aware though, experts are not made overnight. Accelerated courses are common in aviation, but never do they produce experts. True expertise is gained through years of deliberate practice. The process takes consistent efforts spread out over long periods of time. Massive efforts condensed into short periods of time can be highly effective for passing tests. But, the new-found knowledge must be put into immediate and consistent practice to “stick” long term. Even then, the accelerated trainee will only retain what there was time to learn in their short course of instruction. Deliberate practice must be added thereafter and it must be applied consistently, even increasingly, growing in both intensity and frequency, to reach levels that could be considered “expert.”

Too much for too long can create burnout and the desire to step away from an activity. In turn, that begins the erosion of skills and knowledge through disuse. Balance is a critical element to reaching expert levels. While your practice has to be deliberate, intense and consistent, it must be conducted in a way that doesn't lead to extreme psychological or physical fatigue and burnout. Pace yourself to keep energy and motivation in reserve, in order to keep deliberate practice sessions frequent enough to develop your skills and knowledge, but sized and spaced appropriately to keep you wanting to come back for more on subsequent days. **KA**

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Matthew McDaniel is a Master & Gold Seal CFII, ATP, MEI, AGI, & IGI and Platinum CSIP. In 33 years of flying, he has logged over 20,000 hours total, over 5,800 hours of instruction-given and over 2,500 hours in various King Airs and the BE-1900D. As owner of Progressive Aviation Services, LLC (www.progaviation.com), he has specialized in Technically Advanced Aircraft and Glass Cockpit instruction since 2001. Currently, he is also a Boeing 737-Series Captain for an international airline, holds 8 turbine aircraft type ratings, and has flown over 120 aircraft types. Matt is one of less than 15 instructors in the world to have earned the Master CFI designation for 10 consecutive two-year terms. He can be reached at: matt@progaviation.com or 414-339-4990.

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