**Flying a Desk**  
*Using Home Flight Simulators as Training Aids*

**A Long Road to Flight Simulators**

I was born into an Air Force family, growing up around fighters, bombers, and tankers. I knew what SAC stood for when I was about eight, and was disappointed if I had to watch an airshow with the Blue Angels instead of the Thunderbirds. So obviously at some point in my life, I was destined to climb into a small aircraft, and learn to manipulate the controls.

As a kid I remember playing Top Gun on the fancy 286 that Dad brought home one night. You were lucky to ever find another aircraft let alone achieve missile lock. Once we got the upgrade to a 486, I got to put my hands on version two of Microsoft Flight Simulator. It pretty much replicated the gauges and a horizon but I had no idea what to do with it. Later on with a Pentium II and Flight Sim 95, and I found loved the Learjet. I could do a few turns flying back and forth over San Francisco Bay before inevitably crashing. My favorite trick was to taxi slightly forward on the runway, apply full reverse thrust, then after building some momentum stomp the brakes. The view outside the plane doing that was great, causing a fancy jet to rock back on its tail and main gear. I was even able to control it for a take-off from that position.

Eventually high school came, and I lost interest in Flight Simulator, instead jumping into tanks, cars, helicopters, and what was to be known as first person shooters.

A few years into college I became interested in aviation again, and ended up working for a regional airline as a ticket and ramp agent. Surrounded by pilots who were more than willing to share information I started to consider flight training as a real possibility. I signed up for free magazines, catalogues, and just about anything that would get me more information on learning to fly. Only after a couple weeks did I find out what a new Cessna would cost, and just how much it would be per hour to rent an aircraft and learn to fly. I continued to study some of the ground study materials for a while, and got to go for a ride in a Cherokee seeing my pizza delivery area like never before. Unable to afford my own place, let alone the ability to start and finish flight training I became disinterested, and went back to my first person shooters.

At some point in 2005, my new boss left a note on my desk about the company looking for dispatchers. I had no idea what they actually did, but since the company would pay for an FAA license, I figured it would be at least one step closer to learning to fly. I pulled out the old private pilot books and started studying again; full well knowing I likely wouldn’t get to fly this time around either. It did help some with getting my Airline Dispatch License (ADX), although Sheffield School of Aeronautics had a large part in it too. Arriving in the dispatch office after training there was a ton to learn, but there were a couple guys who kept trying to get me into the simulator experience. With Flight Sim 95 being the last thing I flew, I was rather uninterested. Eventually I gave in, picked up a joystick and a copy of Flight Sim 2004. I played with it some, but just flying around at home and not knowing how to land still left me wondering why so many people really got into it as die hard as they did.

Then came the release of Flight Simulator X. Having just spent most of my money to get FS2004 running, I wasn’t that interested in dropping more money on something I didn’t enjoy. I was too busy enjoying my mid-twenties, staying out late on dates and hoping to find a way to get behind of the controls of a real airplane since I was working just down from the FBO. Even with the new dispatch job, and living closer to the FBO, I still couldn’t make the money work.
Other dispatchers started talking about other places to go that paid more, and gave better experience than an East Coast only, turboprop airline. With the alluring salary of dispatchers at UPS and FedEx in my mind, I started looking for a more lucrative position. I ended up at a 121 supplemental carrier, dispatching DC-10’s and 757’s around the world. The pay still about what I had been making, but it was better experience. Somewhere along I-40 in Tennessee there’s an airstrip parallel and rather close to the interstate. Driving the car, and weeks later the moving truck, to Oklahoma I always slowed down to watch aircraft in the pattern. I only found the rumble strip once, and managed not to hit any other cars while ogling the Cessnas and Pipers. I realized that I wouldn’t be happy until it was eventually me up there looking down at the roads and trees with nothing but blue sky and the occasional cloud around me.

Beginning Simulation

Even with my new salary and lower cost of living, I still wouldn’t be able to start flight training. But if I couldn’t take to the skies for real, I could watch the approaches from my backyard, and try for the virtual skies. Re-enter FSX. I called my simulator friends back east, and took to heart what they said about getting a yoke, rudder pedals, and a good amount of hardware for a real computer. It took about a year to save up for everything and spread the purchases out, but I made it. I loaded up FSX and realized that not only was this a different simulator, but I was different. I was finally ready to treat the flight simulator like the training tool it could be!

I started to fly just about anything I thought I could handle, starting with a 737. Except I never could figure out how to get it started, program the flight computer, or push back from the gate. All right, how about something simpler, a Mooney? I was more successful, but it was still a more complex aircraft that I was ready for. I moved down to the Cessna 172. Again more aircraft than I was ready for, but if you’re not challenged then how do you learn? I tried the Piper Cub, but found it was too fun to simply yank and bank, tooling around low level, flying for fun.

The Cessna was advanced enough to make me figure out how to change radio frequencies, use flaps, and really let me learn to fly… and crash. Oh there were crashes, everything from spectacular vertical ground crashes where it looks like you just threw a dart, to impacts with trees, buildings, and as I got better eventually only wing and tail strikes. Then late one night it happened; I actually landed on the runway of intention without a crash. Ok, so there was a crash when I didn’t know how to stop at the end of the runway, but I was able to put it on the ground without the frustrating reset and start over on the ground. It didn’t matter that it was closer to sunrise than sunset; I had to do it again, and again, and again, after looking up how to work the brakes of course. So of the next 20 attempts I managed to stop on the runway only about 3 times without ending up in the grass, but it was repeatable. I spend the next several days raving to my simulator friends, who were patient with my Cessna achievements while their long range twin-jets were on autopilot over the Atlantic. I was also now slightly disappointed because I wanted to move on to more advanced flights, and start talking with a real flight instructor.

The meagerly pocketbook reared its ugly head again in protest. Reality set in, and it became time to find a new job. I would spend the next several months sharing free time between practicing in FSX, and on the hunt for a more lucrative job. I tried my hand in several applications at other places, realizing a move would cost money, and due to a higher cost of living, some places were actually a pay cut. UPS had a few dispatch apprentice slots open, and I tried applying several times, but never got anything more than the automated response of “Your application has been received.”
Climbing the Tower

My parents reminded me of a fleeting desire I had in high school to be an air traffic controller. I checked into it, no college degree required, aviation background preferred, and a paycheck that would certainly assure the ability to start and finish flight training. Just one problem, I didn’t meet the qualifications through a college program, military controller, or other real world experience within the last 52 weeks. I applied anyway. More postings went up for controllers, and I applied to every single one of them. I never heard back, but that didn’t stop me; I kept applying to every opening. Eventually I came back to the application page and put in for a job that had no experience requirement. Sure enough within two weeks I had an interview.

Over the next several months I went through the long process of getting hired “off the street.” That meant interviews, physical exams, drugs tests, psychological evaluations, and in between all of it almost weekly calls to the FAA human resources trying to figure out if I could move on to the next step. At some point there were no more tests, exams, or evaluations to do, and I was told if I was selected I would receive a package with more information. The two months that followed took forever, every day looking for a package that wasn’t there. I pretty much figured that I hadn’t been selected. Almost a year after my first interview, a FedEx envelope arrives, with not only an offer of employment, but a choice between two of my top thirty airports! Eagerly I picked the prettiest place of the two, filled out all of the paperwork and drove to get it back out the same day. I later decided to choose the other city since it didn’t involve a move, and paid roughly thirty percent more, although it meant remaining away from my family on the East Coast. Before I knew it, I was giving notice to my boss and his, who were both happy to see me move across the runway and 200 feet up. The following week I made the short drive to Oklahoma City and the FAA Academy.

The first three days were a blur of official paperwork, rules, dress code, conduct, suggestions, and depressing pay scales. Controllers are paid well for the stress they deal with, however, a new controller in training isn’t paid anywhere near half of that. I added things up, and figured it would be a year before I could start climb into that real Cessna. The Academy only lasted three months and then back to home for local training, and on the job training. Except things didn’t move as quickly as I’d hoped; the FAA was short manned for controllers, and there had already been at least three classes of other “off the street” controllers ahead of me. Training time was hard to come by, and I found studying private pilot material was actually confusing and distracting to studying the material for controllers. I stopped studying the material for pilot training, but kept on flying around in FSX. They say “the more you make, the more you spend.” I never learned the lesson until I ended up buying a house, before starting pilot training. I’m glad that I did, although it pushed pilot training back even further. This was still complicated by the training taking longer as a controller than I’d even been told to expect.

Joining a Community

With crashes in flight simulator now a rare thing, I started exploring multiplayer servers. I tried a few places that claimed they had controllers on, only to find teenagers behaving like they were God on the servers, kicking pilots who didn’t follow their instructions out of the session. I liked the idea of flying with other virtual pilots, but flying with only virtual pilots seemed a lonely thing unless someone signed on to be your wingman.

I made another call to my simulator friends on the East Coast, resulted in more advice and suggestions, something called FSMP, and VATSim. Both of these are communities of mixed levels of proficiency pilots and controllers, all striving to make the virtual skies a better place.
Except FSMP confused me, and VATSim wasn’t all that friendly. I did find a multiplayer community where I fit in, they overall were very friendly, accommodating of different skill levels, and had a true interest in helping each other with difficulties and problems. Boston Virtual ATC, or BVA, became my multiplayer home and learning environment.

Overwhelmed by the amount of information available on their website, I started slowly picking through and attempting flights. The virtual controllers were very helpful, and sounded professional because they use the same documents and rules as those for real controllers. I also became an active member in the forums, asking question upon question. I flew aircraft way beyond my skill level to see how they were different, and even began to understand more of instrument flight. All the time, I was still attempting to figure out how to afford flight training.

Getting off the Ground

I eventually became fully certified as a controller and within another year things had finally settled out financially. So I started looking for a flight school to make it all happen. I found out that pilots seem to enjoy talking to controllers in person, especially when they’re interested in learning how the other side of the radio works. I’d read several horror stories about bad instructors, schools that are only there to make money, airplanes that leave you stranded after falling apart, so I made sure to look closely. I took a discovery flight with one company, toured and attended some meetings and events at another, and even looked for a flight instructor who would be able to fly with me after work at the field where I control. In the end, the school I picked was still in its first year of startup, at an uncontrolled, and very narrow short field in need of repair that I happened to drive by in the middle of nowhere. While the facilities of the field were sketchy looking, the hangar was new; the owner and flight instructors were still very jubilant about an established school that could generate walk up customers. It also greatly helped the drive time to the small field was less than half of the other schools. The small field while a concern initially turned into a blessing. With shorter taxi times, no ATC delays, and limited traffic, it meant more flight time for the money spent too.

I was excited the first several flights, learning the difference in controls between the simulator and real world. Basic maneuvers weren’t much of a problem for me, though I didn’t know any of the ground reference maneuvers. All the sudden my flight training went from excited and going well to disappointed and frustrated. I’d read about this in articles and blogs, my instructor told me it would happen, and they all said about the same thing: “Don’t get discouraged. If flight training was easy you’d be able to get a license from the DMV.”

The Training Tool

It took two lessons attempting ground reference maneuvers which I apparently was not getting. I needed a break, a distraction, anything to make me focus on something other than the frustration that was making things worse. I decided to play around with flight simulator some just having fun for a break. Over the past year or so I’d migrated away from the Cessna into an add-on Glasair III. I wanted something fast for cruise flight, but still capable enough to perform a slow approach for instrument training. I’d become much better at flying the simulator and many of the virtual controllers had grown to know my virtual call sign as someone who could have fun, or be serious trying to learn something new. With the server primarily focused on the Boston Class Bravo airspace, it didn’t make a very good training setting for the ground reference maneuvers I was having trouble with. So after a few hours tooling around in the Glasair without much more success than I was having with a real aircraft I started doing more research.
If only I could find an add-on that was close match for the Piper Warrior I was training with. Eventually I found one, purchased, installed, and loaded it into the simulator. Instead of going to where the server was focused, I loaded into my local area, the better to use local landmarks and difficulties. I first tried some maneuvers which I’d already succeeded with in training. The simulator handled differently, and though it was expected, it was closer than I had considered. I had just found my new best training tool!

Anyone who’s ever done flight training in Oklahoma can tell you ground reference maneuvers with Oklahoma wind are one of the more challenging tasks. Determined not to fly again until I’d gotten things right in the simulator I spent three days trying the maneuvers without success. Since stupidity by definition is attempting the same task in the same way but expecting different results, I started looking. I read every article I could on ground reference maneuvers, digital copies, blogs, even going through back issues years old in magazines. I ended up with a seven year old copy of AOPA’s Flight Training on my desk next to the yoke, having read the article four times. So I tried the maneuvers the way the article suggested, and the light bulb finally came on. The first attempt wasn’t perfect, but it was better. After another two hours of winding my way across roads and orbiting houses, all with a programmed twenty gusting thirty knots of south wind, I finally was satisfied I could complete the maneuver.

Real World Simulation

I called my flight instructor, and requested a flight to only work on those maneuvers. Of course it was another Oklahoma windy day, but I wasn’t afraid to go out and tackle that which had previously defeated me. I nailed it on the first try! The instructor thought it a fluke and made me do the maneuver twice more before giving up that I’d found my problem. I admitted to using the simulator to practice and practice until I read the right article and was able to get it right. He immediately challenged me with other troublesome maneuvers, which I had also practiced, only to find them satisfactory. I was finally back to having fun flying and looking forward to every weekly lesson! Had I been stuck paying for the aircraft and instructor for the four or more hours I practiced in the simulator, it would have been much more likely I would have given up. With my upbringing, I would still have come back for more attempts, tried a different instructor, or just taken a break to come back years later, any and all of which would have just cost more money and frustration.

Unfortunately my elation at having correct ground maneuvers soon found another stumbling block: landings. While I could land the Cessna in the simulator, the Warrior was different. It didn’t help that my self-taught method wasn’t correct either. I was back to crashing the simulator, shit. There’s little more unnerving than crashing a simulator attempting to do what you are learning with real aircraft. That would be why there’s an instructor in real aircraft, he doesn’t want to destroy an airplane or become injured more so than the student. I needed another two or three hours in the simulator and hour in the aircraft to grasp using power to correct altitude, and pitch to adjust speed, while remaining within the flight envelope prescribed by my instructor.

Just about the time I’m comfortable with the aircraft on final, the ground seems to be very close. Yes, time to flare and land. But I didn’t know when to flare, or how much to flare. I tended to get close to the runway, yank on the controls, float back up, and then fall back into the runway ending in a thud or smash. While this is a landing, it’s hard on the aircraft and lower back. This is the one area where the simulator wasn’t of much help to me. Since timing the flare comes more from peripheral vision, building a simulator of use for teaching flare isn’t practical
to the home user. This is because it would require a minimum of three monitors in an array, at a
distance to the user which would be uncomfortable for regular flight. An array of five or more
monitors is much more suitable, and commonly found in certified simulators, however, the
additional cost for the hardware is not easily born by the home user in conjunction with
simultaneous real world training. But that didn’t stop me from trying to learn from my simulator
having only two monitors, but it actually made my landings worse. So I put away the simulator
for a while, and focused on learning the peripheral visual cues. Eventually I got the hang of
landing, and after a couple more lessons got to solo.

Waypoints

Cross country flight comes quickly after solo landings. With a career in flight planning as
a dispatcher, my instructor wasn’t too worried about my flight plan, and turned out was
impressed by it. Like many flight schools mine had a route they preferred for the first several
dual cross country flights. In my continuing effort to stay ahead of the curve, and of course save
myself some money by reducing total flight time, I flew the route several times in the flight
simulator under varying conditions. It should be noted that the scenery in the flight simulator
often includes prominent obstacles such as antennae, but surface features are often quite lacking.
Even with scenery upgrades and add-ons, the simulator is a mediocre representation of real
world scenery.

The day came for the flight with the instructor. The route followed a major highway for
all but one leg, and was designed to keep student busy thinking about interaction with
controllers, frequency changes, looking for waypoints, and calculating estimated time at
waypoints. The instructor admitted the route was too easy for me, with radio work a regular part
of my day job, controllers didn’t intimidate me nor did I have difficulty listening for my call
sign. Visibility was high at forty miles, and I was able to see not only the waypoint I was
crossing, but the next two waypoints at the same time, making navigation simple. The most
difficult task left was calculating estimated time on the fly, and for that I had practiced with my
flight computer during the simulation. After admitting again using the simulator, I was
immediately banned from flying any of our cross country routes in the simulator. Additionally
the instructor said I now had to choose my own airports to fly to, subject to his approval. I also
wanted each route to have at least one major challenge to navigation.

My next cross country was required to not follow any road, river, railway, or power line.
Waypoints were to be more difficult to locate flying over open rural country with barely any
landmarks to begin with. The flight plan for that cross country was uncannily accurate, even for
the instructor, with a very small margin of error. The final dual cross country was night,
simulated instrument flight, using only VOR navigation for one leg, and GPS for the return. The
airport was to be controlled, however, the tower closed while we were still entering the pattern. I
also specifically chose an airport without a VOR within fifteen miles.

Solo cross country flights came shortly thereafter. The instructor seemed more
comfortable with my abilities, even without simulator practice. I chose something easy for my
first solo cross country, enough distance to take some time, but not enough to take all day. I
didn’t expect any difficulty on this cross country, and really got to enjoy the ride. Although the
center providing flight following strongly suggested I detour around an area of live fire which
had not been in the NOTAMs.

The last cross country I took, I chose a route through terrain, well, what we can consider
terrain for Oklahoma and Arkansas. With minimum required altitudes along the route of flight,
and directions of climb to consider, it was the most fun cross country yet. It was also my first experience operating between unfamiliar airports without flight following. Due to a tailwind and the short distance between three of the selected airports, it would have been impractical to call ATC. That didn’t stop me from monitoring the appropriate frequency. I also found navigation between these airports difficult as I was lucky to find at most one waypoint easily identifiable between the three airports each forty miles from the previous. The terrain also had descent considerations, actually requiring turns off course for descent, or a late descent and maneuvers near the field to reach pattern altitude. In the end I enjoyed lunch in a town away from one of the airports, and ATC gave me a close up view of a Learjet on return to the home field.

Continuing Education

While not a small expense, setting up a home flight simulator is worthwhile. The opportunity to practice when you may be grounded for weather, maintenance, or simply stuck on an objective is priceless. A flight simulator is a great way for a student to attempt any tasks and maneuvers which they may fear, or are habitually overwhelmed by. Although uncertified to log time on, the learning experience is not degraded as a result. The learning can be enhanced when the student doesn’t worry about how much money it may be costing them to practice the same maneuver over and over again. Given the choice between logging the time on a certified simulator, which typically cost just as much as an aircraft to use, or an uncertified home simulator, I’d rather experience the home simulator. If a student can include their instructor to sit with them during occasional use of a home simulator, the experience will be even better, and could possibly be logged as ground instruction; still at a significantly lower rate than aircraft rental. When the ability exists to practice with minimal to no cost at home, or even in the lounge of a flight school or FBO, a student has a much better chance of staying involved and completing their flight training. Coupled with a supportive multiplayer community, academic environment, or instructor, it is an unparalleled tool for the student pilot.

As I near my private pilot check ride, I’ve not stopped using the simulator, and nor will I stop. I still use it to practice maneuvers on which I will be tested, as well as load up for the occasional flight of aimless fancy. It provided not only a good cost savings by reducing time which may have been unsatisfactory in the aircraft, but also gave me an opportunity to keep ahead of upcoming ideas and concepts. My flight training and simulator use will not stop in any near future, as I also seek, complex, high performance, and tail wheel endorsements, along with an instrument and possibly commercial ratings. My background and experience are not average, but if a simulator can be even moderately useful to a student with such experience, another student with less experience will likely benefit even more. My flight simulator has assisted me in completing nearly all requirements for my private pilot check ride, in less than the minimum hours. I’m actually going to have to fly extra to get to forty hours!