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Those of you who have met me know I am pretty excited (some would say fanatic) about the potential for using glider flight simulation to improve the sport of soaring. While my current hot button is primary flight instruction, my interest in this regard extends to maintaining/improving pilot proficiency, learning new soaring skills, and promoting the sport of soaring. I am an educator, by avocation, and what all these areas of interest have in common is their educational nature. In each case, someone is learning (or relearning) something about flying gliders.

So, let's start with my current favorite, primary flight instruction.

Simulation is a widely recognized and powerful tool in the educational community, and from a flight training perspective, the military, the airlines, and the specialty flight training companies had this figured out a long time ago. Flight simulation is a highly efficient and cost-effective way to train pilots.

I truly believe, and have a growing body of experience to support the idea, that flight simulation affords the soaring community the opportunity to dramatically improve glider flight instruction; to produce better, safer glider pilots, in less time (at least in a calendar sense), and at the same, if not lower, cost than we are doing it today.

So, if this flight simulation stuff is so great, why are we in the glider community not availing ourselves of its benefits? The answer to that question is probably fodder for yet another Condor Corner article, so allow me instead to relate why I am so excited about this new elephant in the room.

Unlike most flight instructors, I was a trained and practiced educator before I was a pilot. I happen to believe the operative word in "flight instructor" is "instructor. My favorite part of the CFIG written exam was the "Fundamentals of Instruction". My favorite part of the CFIG practical test was putting the lesson plan together and presenting it. I would rather teach someone to fly a glider than fly one myself. As such, I am somewhat of an odd duck.

And so it is from the perspective of a long-time educator, that I recognize and struggle with the current realities of flight instruction in general and glider flight instruction specifically. I refer to those realities as my "Instructional Challenges" and they are a formidable lot. To fully appreciate my enthusiasm for flight simulation as a solution to these challenges, one needs a deeper appreciation of "the problem"; and that is the purpose of this article. So, hang on; here we go into the abyss.

Instructional Challenge #1: Aircraft make lousy classrooms

You have probably heard the saying:

"The worst place to teach someone to fly is in an aircraft."

While this may seem like non-sense, anyone who has ever received or provided flight instruction recognizes the strong element of truth in this statement. From an educational perspective, an aircraft in flight is a very hostile teaching/learning environment. It has the potential to be, and quite often is, noisy, complicated, distracting, uncomfortable, frightening, and physically, mentally, and emotionally exhausting. Had we intentionally set out to design a more hostile learning environment, we would have been hard pressed. Mix in a little frantic screaming from the back seat of the glider and you have the perfect storm.

As an instructor, I often find myself wishing the flight was over and my student and I were back on the safe, comfortable, familiar ground where we could quietly discuss what just went right, and more importantly, what just went not so right.



Getting High and Wide on the Tug

Instructional Challenge #2: Classrooms make lousy aircraft

I never feel more inadequate, as an instructor, than when trying to “describe” to my student what just went wrong with the last aero tow; using one hand to represent the tow plane and the other hand to represent the glider. My deluge of words and my expert gestures seem to be a very poor substitute for the actual flight experience.

I find myself wishing my student and I were back in the air, experiencing the real thing; not just standing around talking about it.

I shouldn't be surprised. One of the fundamentals of instruction, the "principle of intensity", states that we learn more from the real thing than we do from a substitute.

Accordingly, I would like to offer a corollary to Instructional Challenge #1 above:
"The second worst place to teach someone to fly is on the ground."

Instructional Challenge #3: Insufficient Opportunity to Practice

All learning is based on perception, our ability to take in information through our five senses. Perception occurs as we experience things and is reinforced and expanded as our experiences are repeated. Time and opportunity provide those experiences. The "principle of exercise" explains that those things most often repeated are best learned; and thus the need for practice, and lots of it.

From this instructor's perspective, glider flights are quite often too short, and certainly too few, to afford the student sufficient time and opportunity to practice, and are frequently too far between to expect adequate retention of what has been learned.

Too short:

The typical glider training flight at our operation lasts about 18 minutes. Only a fraction of the flight (let's be generous and say 10 minutes) is actually dedicated to the learning objective of the day. That is not much time to demonstrate and teach the objective, let alone provide the student any meaningful practice time.

Too few:

As the guy who endorses logbooks, I would sleep a lot better knowing my pilot candidates had successfully executed a couple hundred takeoffs, traffic patterns, and landings in a wide variety of conditions before being granted the privilege to carry passengers. 40-50 cycles is more typical.

I would feel a lot better knowing my student had experienced and successfully negotiated 40-50 premature terminations of an aero tow. A dozen is more common.

I would like to believe the new glider pilot's high level of skill and consistently good judgment was the logical conclusion to hundreds of hours spent investigating the glider's entire flight performance envelope. Instead 20 hours is more likely, and most of that is not at the dangerous edges of the envelope.

Very few "experienced" glider pilots have logged this kind of time, let alone the newly minted private glider pilot.

Too far between:

Most of our students only fly with us one day a week. In the intervening six days, no further learning takes place. In fact, much of what is learned on any given day will

need to be relearned the following week. And that assumes you don't get weathered out.

Instructional Challenge #4: The Weather Never Cooperates

OK, that may be a bit of an exaggeration, but from an educational perspective, it is all too often the case. In addition to contributing to the “use it or lose it” syndrome, unpredictable and variable weather conditions have an insidious effect on the instructional process.

A well-executed training plan uses the “building block” method of instruction, with each new skill building on previously learned skills. It is important to training efficiency and effectiveness that skills be learned in the proper sequence. For example, until a student has mastered airspeed control, turn coordination, and descent control, they cannot be expected to fly a traffic pattern.

Too often, however, it is not the syllabus that determines the day's lesson, but instead the day's weather. For example, when the time has come for crosswind training, I usually find the wind either right down the runway at 3 knots or straight across it at 20 knots. When I need calm conditions, the wind blows like crazy. When I need a thermal, there are none to be had. Before the student has mastered steep turns, we hit boomers on every flight. You get the idea. I often end up teaching what the day's weather allows, not the next lesson in the sequence.

Weather and other environmental conditions wreak havoc with lesson sequencing.



Stall/Spin – Base to Final

Instructional Challenge #5: Many Valuable Lessons are Never Really Learned

I learned to fly gliders at an airport with two parallel runways; one grass, the other paved. The glider operations used the grass runway. On one of my first solo flights, as I flew base leg, another glider cut in front of me. I followed the intruder onto the grass runway and, while we did not collide, our proximity made a number of folks on the ground quite nervous. During the debriefing, I was asked why I had not simply landed on the available and unoccupied hard-surfaced runway. I didn't have an answer at the time. I do now.

I had never landed on the hard-surface runway. Landing on the grass was the only thing I had ever experienced, and so that is what I did.

All real learning is based on experience, and unless our students have experienced a situation, been trained to deal with it, and have internalized that training through sufficient repetition, they are unlikely to react to it properly.

Unfortunately, there are a number of very important experiences our students will never have, and therefore will never really learn to deal with, either because the requisite situations are too dangerous to actually fly or are simply not available locally.

For example:

I would love to have each of my students experience the insidious and inevitable result of getting low and slow in the traffic pattern and then stalling the glider 100 feet above the ground while skidding the turn from base to final. Rumor has it you can only do this demonstration once.

My students need to land out a couple dozen times during their training. They won't.

I think every student should experience the unpleasant result of trying to stretch a glide back to the airport. 'Not going to happen.

I wish we had ridges to fly in Wisconsin. The last glacier made sure we wouldn't.

Unfortunately, the best we can do currently is to talk to our students about these things and hope for best. Again, this is not the stuff of restful sleep for a flight instructor.

So there you have it; a seemingly insurmountable set of obstructions to effective and efficient glider flight instruction. Is it a wonder anybody ever learns to fly a glider?

Yet despair not, dear reader. In the next edition of Condor Corner, Frank Paynter (TA), in his own informative and entertaining way, will be introducing you to some interesting aspect of competition flying in Condor. I'll be back after that to tell you why glider flight simulation is the solution (and then some) to all of those nasty Instructional Challenges.

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