Column: Condor Corner
Issue: October 2011
Title: Glider Flight Instruction at a Distance
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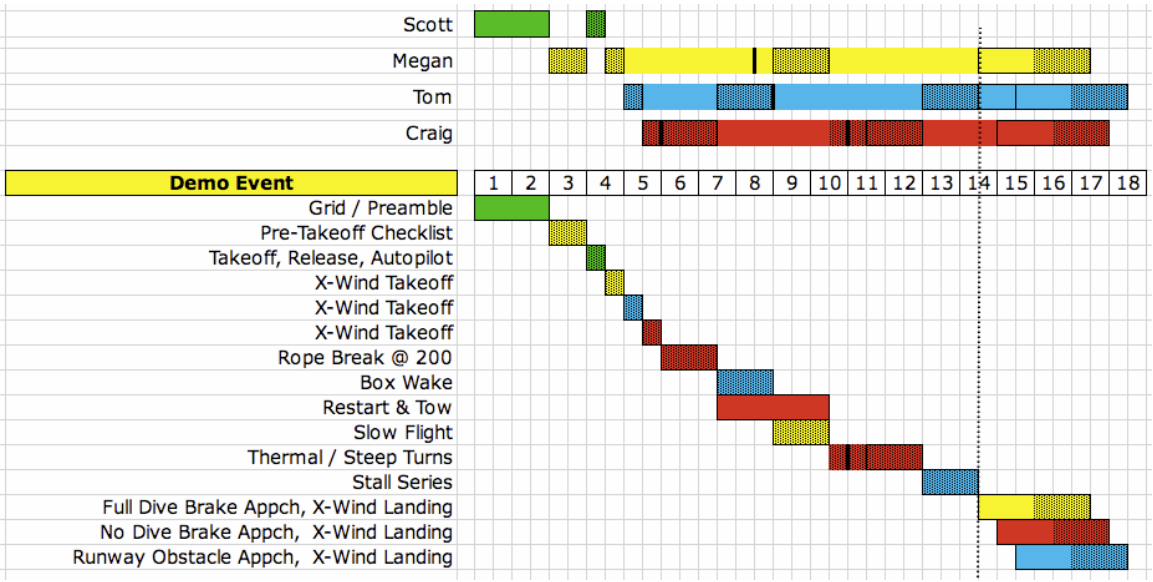
Introduction:
At this year's SSA convention in Philadelphia (PHL), I did a presentation entitled "Flight Instruction at a Distance". The real stars of the show, however, were three of my distance education students, Tom Strickland, his daughter Megan, and Craig Fulmer.

Tom is owner of Sequoya Technologies, a computer networking company in Peterborough, NH. Tom has dreamed of flying gliders since he was a teenager, but career and family have come first. His only experience in a real glider, until recently, was a couple introductory flights 30 years ago.

Tom's daughter Megan is a freelance graphics designer and does information technology marketing for her dad. She has yet to decide whether she is an artistic geek or a geeky artist and has recently relocated from NH to Cincinnati, OH. Her real life glider experience mimics her dad's.

Craig Fulmer is an early 40-something financial planner living in Boston, MA. Craig was my first distance student. Like Tom and Megan, he caught the soaring bug after taking a couple introductory flights. I met Craig online when he posted a question related to "teaching himself to fly"; a practice I don't recommend. I offered Craig professional flight instruction if he was willing to serve as my distance learning guinea pig.

If you were at our presentation in PHL, you would have seen my three fledglings, none of whom (except Craig; more on that later) had any significant time in a real glider, flying nearly all the maneuvers specified in the Private Pilot Glider Practical Test Standard, including some hair-raising rope-break and emergency-on-approach procedures, to better than private pilot standards, live, in front of 50 of their more experienced and certificated peers (no pressure there). On more than one occasion, the viewing audience erupted into spontaneous applause in appreciation for what they were seeing.



PHL Demonstration Flight – Gantt Chart

For an unbiased report of Tom's, Megan's and Craig's performance, check out this link on Soaring Café: http://soaringcafe.com/2011/01/ssa-conference-blog-friday/

Prior to the PHL presentation, I had been working with Tom and Megan for about six months. I met them in person, for the first time, at the convention, the day before the presentation. I had worked with Craig two years prior. Craig had planned on joining us in PHL, but was trapped in Boston by the massive snowstorm that pretty much shut down the east coast that weekend. Craig ended up participating in the presentation (in fact hosted the Condor session), over the network, from his home in Boston, adding yet another layer of credibility to the concept of distance learning.

If there was any question before the presentation that individuals can be taught to fly a glider, to very high standards, in a relatively short period of time, over the phone, using glider flight simulation, Tom, Megan, and Craig removed all doubt.

For those of you who might be wondering how well simulation-based training at a distance transfers to real glider flying, again, Tom, Megan, and Craig have provided the answer.

Craig Fulmer – anxious to try it for real

After a year of distance training (once a week for 1-2 hours), Craig used some airline miles to travel from Boston to Chicago where I met him in person for the first time when I picked him up at O'Hare. Over the next few days, Craig and I flew together at my home base, Sylvania Soaring Adventures in Beloit, WI. His second flight in an SGS 2-33 (takeoff, aerotow, free flight, traffic pattern, and landing) was completely unassisted. Craig took 9 flights that weekend, including a couple with our designated examiner as a crosscheck on my bias. With very little coaching (often none at all) Craig exhibited excellent judgment, situational awareness, and the correlation level of learning. On one of his flights with the D.E., he turned final too high. I saw him enter a perfectly executed forward slip to lose the excess altitude. When I asked him if the D.E. had told him to do that, he said "Nope. I've done that a hundred times in Condor". Had Craig been in possession of a student pilot certificate, I would have signed him off to solo.

Back in July of this year, almost exactly one year after beginning their distance training, Tom and Megan decided to see how their simulation-based skills would transfer to real-world glider flying. They traveled north to fly with the good folks at Stowe Soaring in Stowe VT. For Tom, the experience was a 30-year-old dream come true. Both Tom and Megan flew beautifully and had their Stowe instructors scratching their heads over how well these two "beginners" were able to fly.

Those of you attending the SSA 2012 convention in Reno, NV may have the opportunity to hear the complete story as Tom, Megan, and I are planning a follow-up to the PHL presentation entitled “Tom’s & Megan’s Excellent Soaring Adventure” or “How I Learned to Fly a Glider Over the Phone”. Tom and Megan both have cockpit video of their Stowe, VT flights.

Note:
Condor-specific terms are in *italics*.

Definition
The formal definition of **Distance Education** is:

> Delivery of an education to students who are not physically in a classroom or campus setting.

For our purposes, the definition might be paraphrased as:

> Learning to fly a glider without being physically present at an airport or actually in a real glider.

Why Glider Flight Instruction at a Distance is a good idea?
The short answer is that distance learning advances glider flight instruction from the current paradigm of “At the Airport / On the Weekend” to one of “Anywhere / Anytime”.

The distinction between “Anywhere” and “Anytime” can become somewhat blurred, but collectively the two concepts invoke some important considerations:

1) **Time**
   If we expect to grow our sport, we must find ways to be more respectful of people’s time. Aside from our health, time may well be our most precious commodity.

   For some very good and well-understood reasons, glider operations are not conveniently located near major population centers. As a result, student pilots and their instructors must often travel long distances to a training venue. Travel takes time and if you are training or instructing on a regular basis, it takes a lot of time. To appreciate the impact travel time has on the growth of our sport, think about whether you would frequent a store or restaurant that required you drive 3 hours round trip and then stand around outside one hour for every 20 minutes you spent inside.

   Distance learning eliminates a large percentage of the travel time associated with conventional glider flight instruction. Because distance learning is simulation-based, it also dramatically reduces the amount of time it takes to conduct a given segment of training. There is no waiting around for your turn to fly.

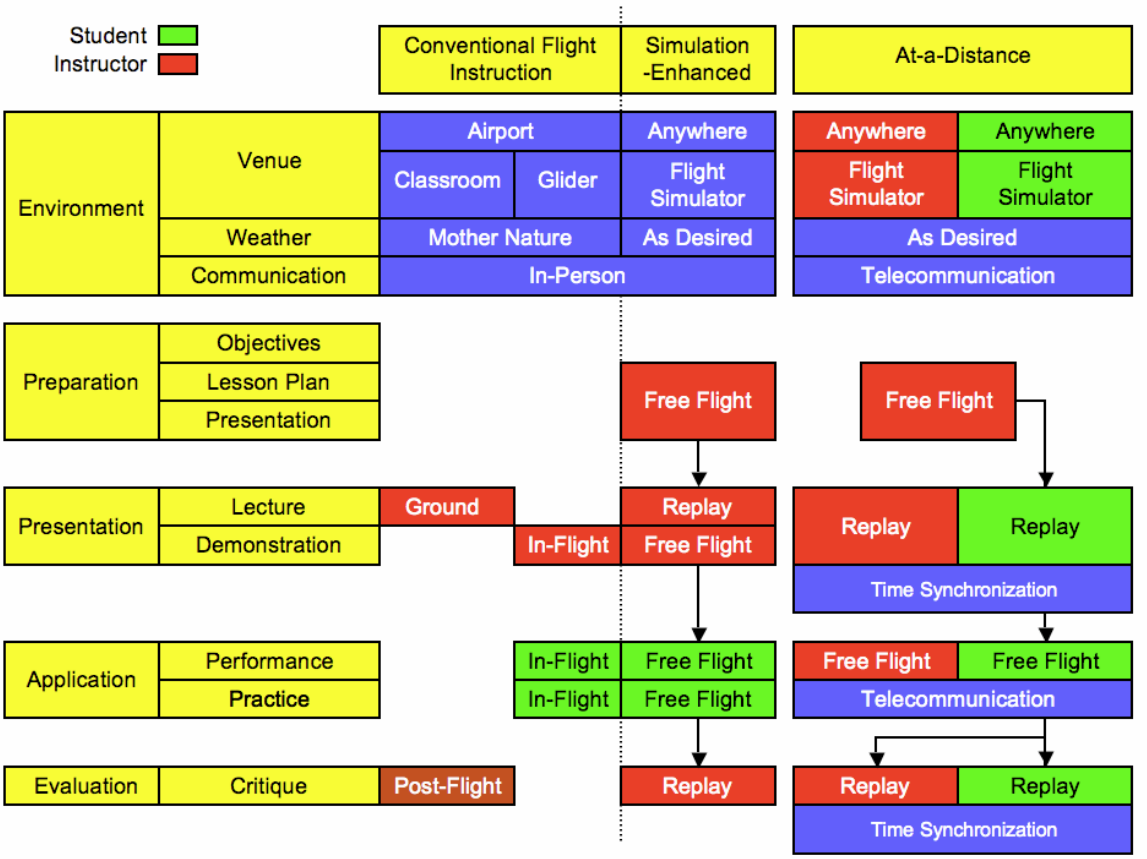
2) **Schedule**
   The current flight-training paradigm largely requires students to accommodate the schedule of their training venue. At most clubs, and many commercial operations, that means weekends. Weekday, evening, and off-season training options are rare.

Distance learning provides students with a much greater opportunity to train on their own schedules; a much more attractive option.

3) **Access to Experts**
Because both the instructor and the student can be anywhere in the world, distance learning provides students with access to instructional expertise not available at their local soaring site. Frank Paynter is a good example. Frank provides expert training in cross-country and competition flying to students all over the country without ever leaving his home in Ohio and without his students having to leave their homes in (fill in the blank). Interestingly, Frank was also recently the beneficiary of distance learning. Studying under Bruno Vassel IV, a Utah-based competition pilot, Frank, from his home in Ohio, was able to fly representative tasks and get to know the local Logan Utah terrain features in preparation for this year's 15-meter Nationals (Soaring Magazine: July 2011). Flatlander-Frank placed 5th in the real-life competition.

4) **Access to Students**
Instructors willing to provide flight instruction at a distance can dramatically expand their student base. In fact, using distance learning, instructional sessions can simultaneously accommodate multiple students. Tom and Megan Strickland shared all their instructional sessions.

5) **Clubs and Commercial Operations**
I believe soaring clubs can use distance learning to dramatically improve the student flight training experience and commercial operations can use simulation-based instruction and distance learning to improve their bottom line. This will need to be fodder for a future Condor Corner, as I promised Chuck I would keep my articles under 2000 words.



Comparison of Conventional Flight Instruction, Simulation-Enhanced Flight Instruction, and Flight Instruction At-a-Distance

Flight Instruction At-a-Distance - How it's Done.
Following the standard teaching process of Preparation, Presentation, Application, and Evaluation (Critique), here is how I conduct flight instruction at a distance.

Preparation
I first use Condor's *Flight Planner* function to establish the ideal flight environment for the lesson to be taught, including the airport and local terrain, the weather conditions, the training aircraft, the realism settings and the launch method. I save this entire set of parameters as a Condor *Flight Plan*.

As the instructor, I then use the simulator to personally fly the lesson I intend to teach. This helps me identify the issues and procedures I need to address in the lesson. Once I am able to fly the lesson to the required standards, I save my flight as a Condor *Replay* file; essentially a video recording of the fight.

Finally, I send my student a copy of the lesson-related *Flight Plan* and *Replay* files as email attachments and ask them to place these files in their Condor installation.

Presentation

The pre-flight lecture and flight demonstration functions are combined using Condor's *Replay* function. Voice communication is established via either a regular landline or internet-based telephony (e.g. Skype). I ask my students to start the *View Replay* function from Condor's main page, select the appropriate lesson file, and initiate *Replay*. Essentially, we then watch a movie together. Because we are independently viewing the *Replay* in separate locations, we need to synchronize the action. This is done using the chronometer on the glider's instrument panel. Using the *Pause* function, progress bar, and play functions available, my students and I are able to watch exactly the same scenes at exactly the same time.

The Presentation phase brings the student to the understanding level of learning.

Application

It is now time for the students to apply what they know. I first have the students initiate *Free Flight* from Condor's main page. Once in the *Flight Planner* function, they *Load* the appropriate *Flight Plan* from their *User Flight Plans* folder and select the *Start Flight* option. As the instructor, I follow the same procedure on my Condor installation.

Next the students and I activate our respective *Flight Plans* (*Esc + Ready for Takeoff*) and I talk them though the required flight maneuver. I imagine the student is performing the maneuver as I am, but I have no way of confirming this in real time. As I talk the students through the maneuver, I ask a lot of questions about what they are seeing on their screens and adjust accordingly.

When I am satisfied the students are able to fly the required maneuver, I ask them to practice the maneuver on their own. Essentially I am signing them off to solo on this specific maneuver and requiring them to act as pilot in command. When they believe they can fly the maneuver to the required standard or if they are having trouble flying the maneuver, I ask them to save a *Replay* of their flight and send it to me as an email attachment.

Critique

After receiving the student's *Replay* file, I place it in my Condor installation and use the *View Replay* function to review the their actual performance. Depending on what I see, I may offer my critique via an email reply. If necessary, I will arrange a phone session in which we simultaneously watch the student's performance via the *Replay* function and I offer my critique as the action unfolds.

As needed, I will repeat the presentation, application, and critique phases until the student meets the lesson's required performance standard. Then it is time to move on to the next lesson.

In Conclusion

Flight Instruction at Distance is simply an extension of the simulation-based glider flight instruction I have been advocating for the past several years. In the same way simulation-based instruction resolves the five challenges of conventional glider flight

instruction (Condor Corner - May 2010), Distance Learning largely resolves the issues of time and space. "Warp Drive, Mr. Scott!"

Next Time

In the next instruction-related Condor Corner: **Using Glider Flight Simulation to Maintain your Proficiency**. Until then, keep those cards and letters coming.

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Scott Manley owns, and occasionally actually flies, a DG-303. The back of his pilot's license reads: Commercial pilot: airplane single-engine land & sea; instrument airplane; glider. He lives in Madison, Wisconsin and flies as a commercial pilot, glider flight instructor, and tow pilot for Sylvania Soaring Adventures in Beloit, Wisconsin.

Instructions for the Editor / Mark up Staff
(not part of the article)

In addition to sending you the image files independently, I imbedded them in the text document close to the text that refers to them to express my preferences for their placement.

I'm guessing you can strip these images out and replace them with their larger format counterparts. If not, I can send you another text document without the imbedded images.

Thanks, SRM