

John Boyd, *ch'i cheng*, and Auftragstaktik

John Boyd

A pilot.
A real pilot.
A real fighter pilot.
A real fighter instructor pilot.
A real “40 second Boyd” pilot.
A real bet: He never lost in six years.
A real pilot engineer – EM theory for all.
A real pilot fighter - Sun Tzu *The Art of War*.
A real pilot strategist: Made famous **OODA** loop.

Ch'i Cheng¹

Or, *cheng ch'i*, are fundamental concepts to both Boyd and Sun Tzu.

“They involve deceptive tactics. The enemy is confronted by *cheng* (orthodox) and then defeated by the application of *ch'i* (unorthodox) forces. Cheng and *ch'i* are the yin and yang of tactics and strategy but they should be applied together to fight. One wants to identify, nurture, and exploit mismatches and hurl strength against weakness. The ultimate test of success for Sun Tzu was to subdue the enemy without having to fight him” (Hammond, p. 125).

Patton’s plan for “attacking the Germans was to ‘hold them by the nose and kick them in the ass.’ Holding them by the nose is the *cheng*. Kicking them in the ass is the *ch'i*” (Coram², p. 331).

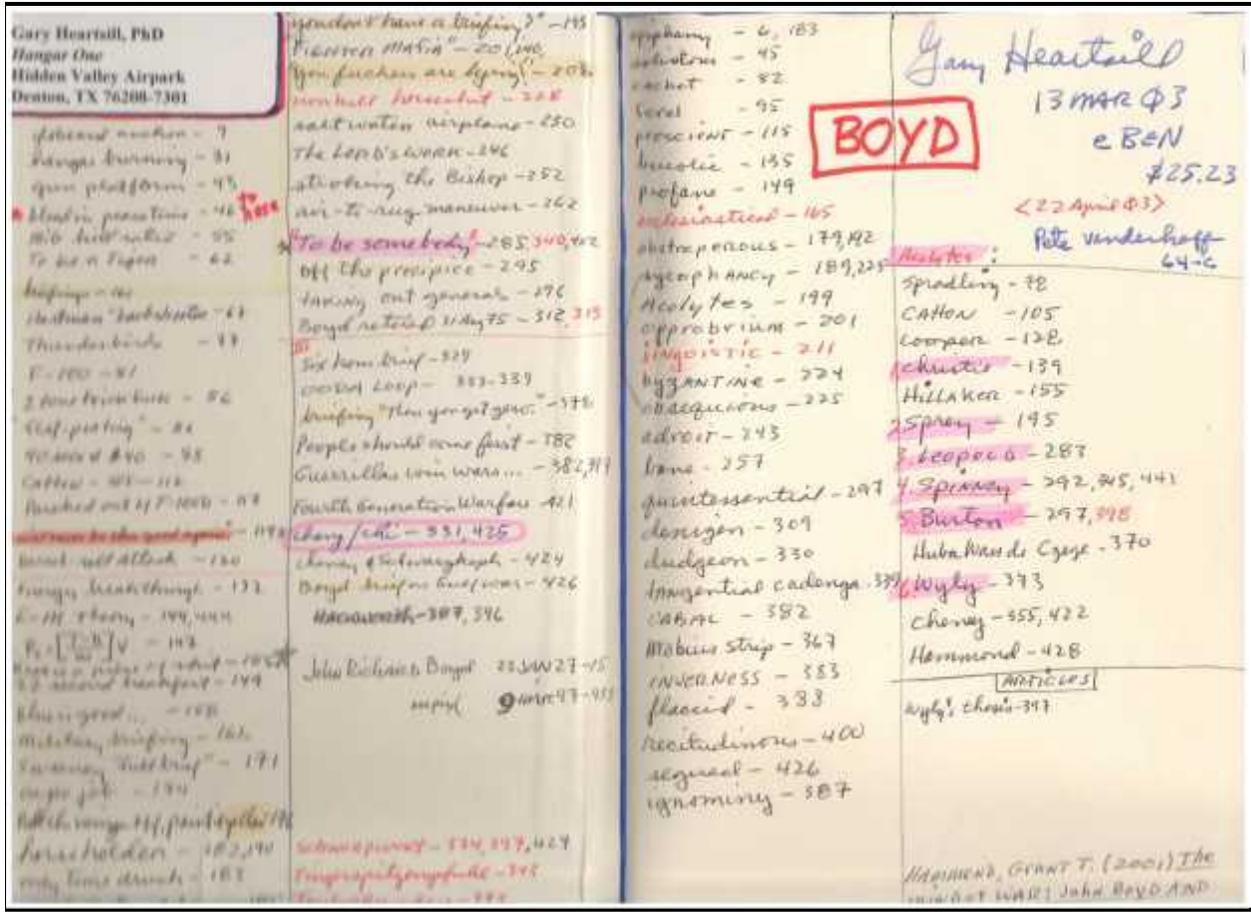
Auftragstaktik

“The implicit contract in maneuver warfare is mission-type orders and **Auftragstaktik**. The subordinate agrees to take near-term actions in keeping with the commander’s intent. The superior agrees to allow his subordinate the freedom of judgment to determine exactly how that should be accomplished. He is thus empowered to both recognize and take advantage of opportunities that he may encounter...it provides a bottom-up, outside-in, real-world response in real time to transformations on the battlefield and thereby creates operational fluidity...an operational OODA loop cycle that adjusts to its own rhythm and tempo. It displays Boyd’s critical concepts of variety, rapidity, harmony, and initiative” (Hammond, p.153).

By the way, in the Gulf War, Schwarzkopf’s plan was to go ‘high diddle up the middle’ but Dick Cheney said the Marines would feint the attack in Kuwait while the Army would make a left hook and swing north to cut off the Iraqi Army. This means the SEC DEF had been briefed by Boyd...(Coran, pp. 422-426).

¹ Hammond, Grant T. (2001). *The mind of war: John Boyd and American security*. Washington, DC: Smithsonian Institution Press.

² Coram, Robert. (2002). *Boyd: The fighter pilot who changed the art of war*. Boston, MA: Little, Brown and Company.



The inside cover to my Boyd book: **gut marks, vocabulary, and acolytes.**

I shall now, like I did in class take a tangential cadenza – just like my hero prescient John Boyd (check it out, p. 339 above...). Of course, you can't cover the rectitudinous John Boyd in just a few pages but when he showed up in G. Heart Country we were all forever quintessentially changed – as noted by the adroit class patch.

You can choose anyone of the bucolic gut markers above or in your book and make the case for his place in the systemic slot for discovery learning – maybe “Ah, ha!” learning. If we look back at the profane pilots, instructors, mentors, coaches, fighters, heroes, John Boyd is leading the jingoistic formation. He is the obstreperous f'ing tip.

For me, byzantine instructor I am, seeing him come from the Fighter Weapons School in the F-100 and then into modeling the F-16, his time studying warfare and lastly his contribution to his country fighting the flaccid generals is someone who deserves in my mind to be the ONE to look up to. I could go on with this non-opprobrium, but would have us all in ecclesiastical tears and we have got to move on...up and away...but comma God Bless John Boyd.

‘Who, would you put on your obsequious patch?’

OODA Loop or the “Boyd Cycle”

Hammond discusses the OODA Loop as well as Coran and includes not attacking the centers of gravity and from the inputs of people like von Clausewitz they list, like Boyd, the essence of maneuver tactics with “two crucial words: Ambiguity, deception...” (Coran, p. 338). The Germans discussed the process issues as they watched Patton plowing east toward Berlin knowing the war was about over with until as some say “Eisenhower’s timidity cost another six months of war and a million additional lives” (p. 338).

In the class the Observe-Orient-Decide-Act Loop or cycle is not really a loop but you will have to read about it in the books - or online. In the class Boyd’s, what I call teaching philosophy, was a continuation of what I was doing all along but didn’t know what to call it. Let me explain. (look up the two German words: *Schwerpunkt* – meaning main focus, and *Fingerspitzengefühl* – meaning fingertip feel.)

These really translate into ‘what is going on in battle or conflict’ (or class). Boyd uses the idea of a commander must ‘arrange the mind’ of the enemy. Boyd extends the German success of Blitzkrieg and how it was managed – which is where we are going with the name now being Auftragstaktik and applying it to the briefings (for generals or my class).

Long quote here – it says it best in Coran: “...the blitzkrieg is far more than the lightning thrusts that most people think of when they hear the terms; rather it was all about high operational tempo and the rapid exploitation of opportunity. In a blitzkrieg situation, the commander is able to maintain a high operational tempo and rapidly exploit opportunity because he makes sure his subordinates know his intent, his *Schwerpunkt*. They are not micromanaged, that is, they are not told to seize and hold a certain hill; instead they are given ‘mission orders.’ This means that they understand their commander’s overall intent and they know their job is to do whatever is necessary to fulfill that intent. The subordinate and the commander share a common outlook...Trust is the unifying concept. This gives the subordinate great freedom of action...” (p. 337).

Boyd’s briefings³ had some “niggling faults” and colorful as they were, according to the text, but one sentence stands out for the execution of them and was being used in my classes: “*The purpose of the briefing was not to reveal the ‘Answer’ but to jar listeners out of complacency and into thinking on their own*” (p. 339) – (italics mine).

In G. Heart Country the ‘mission orders’ were spelled out in the Primer and fostered in each day and each hour lesson for the student to join in on the learning outcomes by the participation in the form of hand outs, readings, speeches, briefings, or group exercises. I took the better part of two to three days for this “blitzkrieg” to take effect and for the student to know my *Schwerpunkt*. I will say the ‘lieutenants’ who picked up on this were rewarded for their participation and from then on the hill climbing, engine out gliding, smoke and fumes, and playing the games like “Ok, lieutenant I am gonna kill you” let us share in the common goal of the class and that is of course Flying the f’ing airplane.

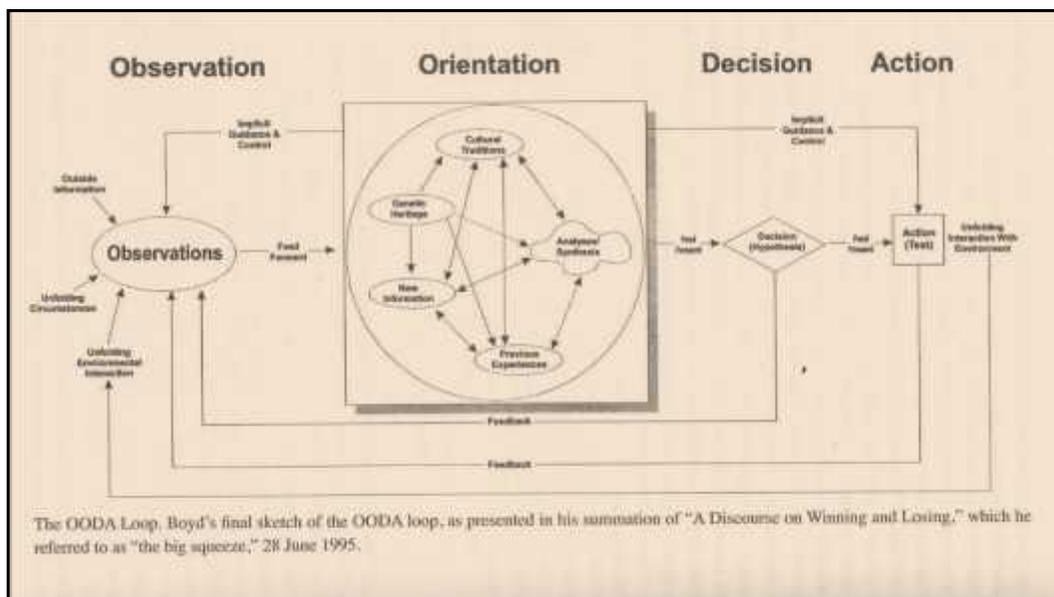
³ http://www.dnipogo.org/boyd/patterns_ppt.pdf

John Boyd (2007). *Patterns of conflict*. (Richards, C. & Spinney, C., Eds.) Defense and the National Interest. This is as much depth as one can get into Boyd’s briefing without having him do the briefing himself.

Will use the rest of this chapter to show some of the exercises and class work done in the class.



John Boyd on cover of Coran's book



This 'final sketch' of Boyd's OODA Loop is on page 190 of Hammond's book.

تنبیه

قلمنشاہ

تنہی

مہ!

FOI WORD PUZZLE

L E U F Y R E T N O R F F E
S U O I N O M I R C A C N O
U P R O P I T I O U S A C B
B H A K P N E T S I L C B S
I I N L M A G U L P E O T T
Q L D H U P O O R L T P N R
U I R H D P Z I F I H H E E
I S A O K L A H O M A O L P
T T G M Z E S U F P R N C E
O I O A H O O B Y I G O U R
U N G T O G A W U P I U R O
S E Y G O G A D E P C S T U
P L U G E U P H O N I O U S
F P E R S P I C A C I O U S

Bonus: _____

OKLAHOMA
FUEL
PERSPICACIOUS
APPLE
LETHARGIC
LISTEN
PEDAGOGY
ANDRAGOGY
FUSE
OBSTREPEROUS
PROPITIOUS
PLUG
PROPITIOUS
UBIQUITOUS
HIFI

LIMPID
CACOPHONOUS
DUMP
CB
EUPHONIOUS
PUBS
TRUCULENT
TOGA
PHILISTINE
WAG
ACRIMONIOUS
POOR
EFFRONTERY
HOOPY

WORDPUZZLE.WPD

THE AVERAGE PILOT, DESPITE THE SOMETIMES SWAGGERING EXTERIOR, IS VERY MUCH CAPABLE OF SUCH FEELINGS AS LOVE, AFFECTION, INTIMACY AND CARING. THESE FEELINGS JUST DON'T INVOLVE ANYBODY ELSE.

War is an ugly thing, but not the ugliest of things: the decayed and degraded state of moral and patriotic feeling which thinks nothing *worth* a war, is worse. When a people are used as mere human instruments for firing cannon or thrusting bayonets, in the service and for the selfish purposes of a master, such war degrades a people. A war to protect other human beings against tyrannical injustice; a war to give victory to their own ideas of right and good, and which is their own war, carried on for an honest purpose by their free choice,—is often the means of their regeneration. A man who has nothing which he is willing to fight for, nothing which he cares more about than he does about his personal safety, is a miserable creature who has no chance of being free, unless made and kept so by the exertions of better men than himself. As long as justice and injustice have not terminated *their* ever-renewing fight for ascendancy in the affairs of mankind, human beings must be willing, when need is, to do battle for the one against the other.

JOHN STUART MILL, "The Contest in America," *Dissertations and Discussions*, vol. 1, p. 26 (1868). First published in *Fraser's Magazine*, February 1862.

OVERRIDING CONSIDERATIONS

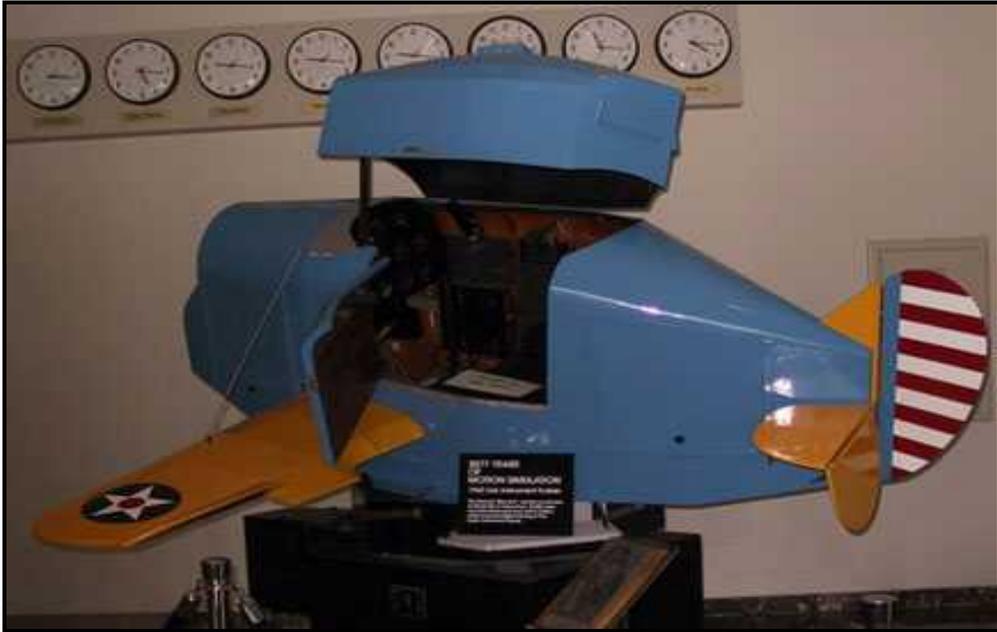
In all emergencies, the overriding consideration must be to:

- Maintain airplane control
- Analyze the situation
- Take proper action

The procedures in this section of the manual have been developed by Learjet Inc. for certification of this aircraft. This section contains those operating procedures requiring the use of special systems and/or regular systems in order to protect the occupants and the aircraft from harm in the event of an emergency condition.

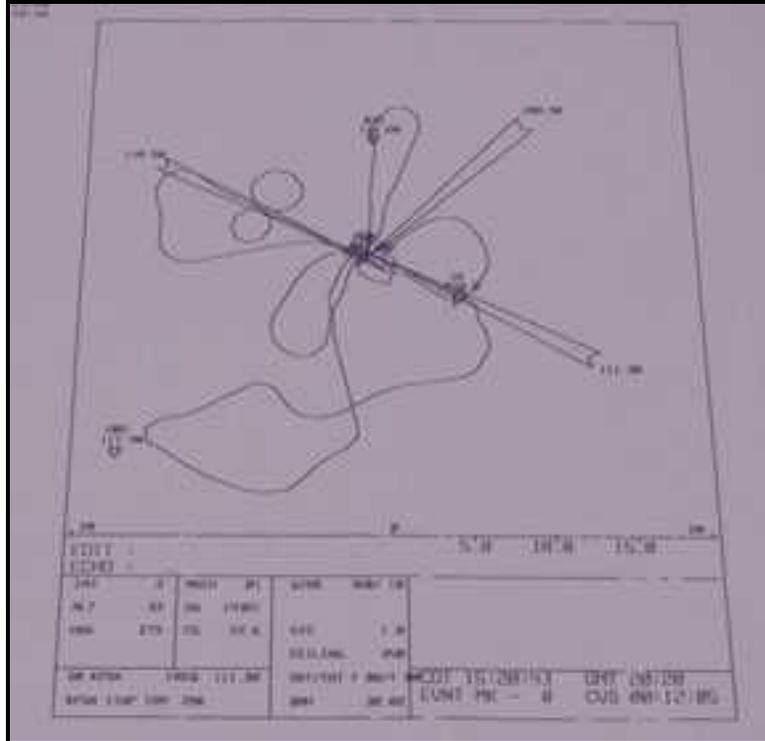
Only single conditions are considered; however, each condition requires a different response. Sound judgment as well as thorough knowledge of the aircraft, its characteristics, and the flight manual procedures are essential in the handling of any emergency situation. The checklist provides a ready reference to be used as an aid; however, the flight crew should refer to the basic flight manual for amplified information as soon as circumstances permit.

"The only things we take with us are the memories of the good times we had and the good people we knew along the way."



The ole Blue Link trainer





Although this print out is from more modern simulation the tracing of ink on a glass board done with the ole Blue Link would be similar. This shows the flight path of my training tool called “Mike Fox” – reflecting a quite challenging flying lesson from an IP student in G. Heart Country. Will show the exact ‘Mike Fox’ in chapter 11.



THE BLUE BOX: SOLO

Gary Heartsill

How far back in the training of pilots do we have to go to teach the modern crew concept of airplanes? Should we go back to nickel beer and put tail wheels back on the airplanes? This minority report suggests going back almost that far. What do you think?

An old Link Trainer with a blue fuselage and one yellow wing sits in the atrium of the SimuFlite Training Center at D/FW. The right wing has been removed to fit the trainer snug in the corner. The Link Trainer, as a static display, is tilted to the left with the door open and the hood up, so the single placed cockpit can be viewed. A small white light illuminates the primitive instrument panel. Perhaps you have seen this Link.

Perhaps you, like me, have flown the Link at one time or another in your career. Do you remember the red map lights, the creaking sounds, the sweat, and the vomit smell? Do you remember, while doing turns, the occasional outside light that would drift across the panel through a crack in the blue fabric hull? Ah, the longing for the true and the beautiful ... were those the good old days or not?

This may be a minority opinion, but that old blue Link Trainer was a better trainer than some of the PC tabletop, motionless stuff we have today. In a way, the old blue Link is superior to our present-day Level C and D simulators. For one thing, flying the old blue Link gave you a better instrument scan or crosscheck; it had to be better to keep the whirling blue box from falling off its precarious perch. For another, while in the Link you always knew where you were. Spatial awareness was a given: you didn't leave the chocks without it. Shooting ADF approaches in the Link, after a timed descent in the hold (the stack), was better training than using our forced, modern-day ATC radar vectors. Besides that, all the decisions were made by the pilot. There was no polling or assertiveness. When you were cleared for the approach, the problem-solving and flying was up to *just*

the pilot.

The appreciation for being solo, like a mail pilot, a crop duster, or a fighter pilot, comes out of the satisfaction of having done it by yourself. Flying the Link didn't have team building. Flying the Link didn't have leadership-followship. It was a one-man band. The competition pitted the pilot and the machine against the elements. *One learns how to fly when solo.*

This solo flying suggests that the confidence, the experience, and the seasoning gained while flying in the Link does more for being able to fly large, multi-crewed airplanes than some of us realize. This solo confidence adds to one's flying ability so the outcome is never in doubt. Solo confidence is the attitude expressed by our first supersonic hero when asked about the fringed outcome: "In doubt? Hell, there ain't no way I'm gonna screw this up."

We should go back to the Link Trainer. Pilots should have the Link Trainer first. They need to have the scan, the awareness, and the confidence *before* they fly as a crew. A pilot trained in a blue Link Trainer with yellow wings has the appreciation and the perception that are difficult to learn in a multi-crew environment. Every pilot should have the experience of flying the Link Trainer; indeed, it adds to the true and the beautiful.

We could start by cranking up that old blue Link Trainer on the first floor at SimuFlite, but before we call for our clearance, we need to replace that right yellow wing. □

My argument in this paper is pushing solo flying and learning better under the pressure of flying an old Link. I promise you when you look at something else besides the attitude indicator the link will look too – trust me on this.

OKLAHOMA



This picture had to be taken in October. It was painful to hold class when the **SOONERS** were in the Cotton Bowl playing some school in Austin...as a matter of fact Oklahoma beat the Longhorns nine of the 16 years during G. Heart Country epoch and scored 459 to 375 points - we can tout these numbers.



Some of you will notice – we discuss paying attention to detail – Saint Switzer signed the football...

For some of us – and I am unanimous in this – the most important word in the English language is the word **OKLAHOMA**.

However, there is a small bit of education with this etymology you all must ‘grasp’ for the true sense of the word **OKLAHOMA** and in scientific English – while I am at it -

the name **OKLAHOMA** is actually hyph-enated.

Course, I don’t want to waste my time trying to convince you of this

so I have a picture to prove it.



As they say in the **OKLA-HOMA** nation (with bated breath)

BOOMER – SOONER

CONNECTING THE DOTS

Well Mr. Heartsill, it may be hard to believe but my time in "G Heart Country" is quickly coming to a close. With any new encounter, there is a certain level of anxiety to be expected. I first read your primer when I had no more than 100 hours in the jet, or as you would call it, a worthless puke. I heard many different stories about what to expect down here, and some of those stories were replicated. Now with almost 600 hours in the jet and after five days of Fundamentals of Instruction, I am still trying to figure out what the hell just happened. This paper, whether it lasts three pages or not, will attempt to "connect the dots," not for your understanding, but my own.

After five days of FOI, my Zinger Sheet/Log is nearly full. Some of them are funny quotes that I plan to share with other survivors of G Heart Country. But most of them are nuggets of instructional gold that I will hopefully be able to put to use throughout my aviation and teaching career. The first and one of the biggest pieces of information is to gauge the student and understand the objectives. This one hits near and dear to my heart. I do not pretend to be a C-21 systems expert. I am a more than competent instructor pilot candidate that knows how to safely operate the systems, but I struggle at times with getting down to the nitty-gritty. I've sat through briefings that have gone way over my head and have proved to be a giant waste of time for both me and my instructor. Had my instructor taken the time to find out my current level of understanding, then maybe he could have tailored the briefing to something I could digest and eventually teach others. I will strive to do the same for my students, while

attempting to teach them something while not insulting their intelligence. The key to this – gauge their current understanding.

I hate talking in front of a group, especially if I do not know exactly what I want to say. So when you ask me to stand up on the first day, my stomach dropped just a little. You gave me ten seconds to come up with any topic at all, and then brief it for two minutes while avoiding ums, ahs, and awkward hand gestures. It turned out to be a memory I will not soon forget, and it also boosted my confidence. A confident instructor is a good instructor. And it also speaks to the importance of communication in instructing. If I cannot communicate effectively with my student, then there will likely be no learning on either of our parts.

We had an assignment to count the number of warnings in the dash one. Is this important for safe operation of the jet? Not necessarily. But would the King of the dash one know this number? Perhaps. Having that level of expertise will show the rest of the pilots I fly with that I am a “go to guy.” We all want to be that guy, but are we willing to put in the work and effort to attain that level of knowledge? I certainly hope so, at least for myself.

“Are there any questions?” This is the best way to signal that your brief is over and that you do not really want any questions. Instructors should do whatever they can to continue to facilitate learning. “Have I covered this topic sufficiently, or are there any lingering questions that I may not have covered yet that you would like to discuss?” This may not be the best way to keep the discussion going but it is a start.

A.N.C.I. Aviate, navigate, communicate, THEN instruct. FTFA. FTFA. FTFA. You may have just given then world’s best single engine briefing, and your student may

never forget it for the remaining five minutes of their life. We reviewed the Ellsworth tragedy and searched for root causes. Instead of flying the plane and monitoring fuel balance, they ended up in a smoking hole. And worse yet, they were buried together so they will forever be known as a Mishap Crew. I want to be buried next to my family after a long and fulfilling life, not next to a co-pilot or any other pilot for that matter. Fly the plane first. Fly the plane always. If you notice something you can safely instruct, do so. But instruction can happen on the ground at airspeed zero where it will not kill anyone.

Speaking of aviation mishaps, you warned us to stay away from crash sites because they will haunt us. I plan to follow that advice.

We watched a CSPAN briefing on Globalization. What did that speaker do so well? He knew his stuff! He knew it inside and out, forwards and backwards. And he was enthusiastic. If you know your stuff, and you are excited to share that with someone else, you can brief anything to anyone.

I am walking away from this class with a completely new mindset and outlook on instructing and teaching and learning. That was the goal, right? I will also remember a man who accidentally put his birthday on the dry erase board so the class could see he spent his 75th birthday with a bunch of Lieutenant pukes instead of with his family. And on Easter of all days! Your "dash" has been pretty remarkable to this point, but do not let all these nice words go to your head.

You have enough pages to read from Embry-Riddle so I will stop here. I am slowly starting to think that I may be connecting the dots.