CALLBACK

From NASA's Aviation Safety Reporting System

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Aviation Training Incidents

Training is a constant activity in almost every aviation environment, from instruction of pilots to training of mechanics and air traffic controllers. This month we look at a selection of recent ASRS reports that involve common training dilemmas. These include:

- Letting the student go too far
- Instructor loss of focus
- Student over-reliance on the instructor.

Letting the Student Go Too Far

Situation #1: An instructor walks a fine line in knowing when to intervene to prevent a hazardous situation. If the instructor takes charge too soon or too often, the student may never learn the skills and judgment needed to be a safe pilot or controller. In the case of a Regional Jet 200 Check Captain, a strong desire to teach backfired during an approach sequence with a First Officer.

■ *I was performing IOE* [Initial Operating Experience] *with my First Officer and we were on final approach in visual conditions. We were doing training and my First Officer had been consistently high on his approaches and this was debriefed beforehand on several legs. During this approach, he remained high and I let it go as far as I thought was safe before I started talking him down. We were about 1 mile outside the FAF at about 4,000 feet and at 200 knots with flaps at 20 degrees. I suggested that he slow and get more flaps out and he extended the spoilers halfway. I then reached down and extended them fully as he slowed further. Since we were still high, I suggested he remain at or near flight idle to get down to the glide slope. As we descended, he configured gear down, flaps 30 degrees, then flaps 45 degrees with a reference speed of around 140 knots. As we approached reference speed, I realized that the spoilers were still out and that we were below the minimum spoiler extended speed…Just as I reached out to retract the spoilers, we got the shaker for a duration of about 1 second.*

Looking back on this event, I realized that my desire to train and talk to the student through this approach was a contributing factor to the incident…I should have taken control of the airplane when I realized that we were too high on the approach and flown the approach. My desire to teach and show the student the consequences of being high on the approach backfired and led to 2 limitations being violated. In the future, I will take the controls much earlier when a student is high on final, and be much more aware of the speeds when spoilers are extended.

Situation #2: An air traffic controller had bad vibes about a trainee's instructions to two aircraft – but when the instructor tried to intervene, miscommunications prevented a timely resolution.

■ *I was training a Developmental* [controller in training] *on a Radar East sector…The Developmental descended an MD80 to 3,000 feet about 10 miles northeast of airport on a heading of 180 degrees. A Cessna 414 departed airport heading 030 degrees climbing to 4,000 feet. The trainee told the C414 to climb and maintain 12,000 feet and turn right to ABCDE intersection (approximately a 060 degree heading). As I was telling the trainee that this was not going to work, the C414 asked for a verification of the assigned vector and altitude. Instead of hearing me,* [the trainee] *heard the pilot and verified the climb and vector. Again I told the trainee this was not going to work and to correct the situation. The trainee called the C414 and told the pilot to fly heading 350 degrees and maintain 3,000 feet. The pilot did not respond. Again the trainee called the C414 with no immediate response. It turns out that the trainee had transposed the last 2 letters of the C414's call sign. I did not realize that* [the trainee] *had made this mistake. The trainee advised the MD80 to maintain 4,000 feet and turn left, I do not recall what heading was assigned. The MD80 pilot acknowledged and complied. Either before or after the communication with the MD80, the C414 asked if the previous calls were for them because the last two letters were transposed. The trainee responded affirmative and told the C414 to fly heading 350 degrees, maintain 3,000 feet, traffic stopped at 4,000 feet. The C414 pilot replied 'turn to 350 degrees, maintain 4,000 feet.' The trainee told the C414 to maintain 3,000 feet, traffic alert. The C414 pilot replied 'Maintain 3,000 feet, traffic in sight.' At this point, separation had already been lost….*

The error began when the trainee turned and climbed the C414 directly toward the MD80. In retrospect, I should have taken over at that point but I wanted the trainee to fix it. When the trainee twice used the transposed call sign, I did not catch the mistake and this is what I believe led to the loss of separation….

Instructor Loss of Focus

Situation #3: In the aviation maintenance environment, Technicians may be asked to play dual roles, depending on staffing and availability of resources. A Maintenance Upgrade Inspector made several inspection errors while trying to train a new-hire Mechanic.

■ *I was an Upgrade Inspector (I am an alternate) on RON* [Remain Over Night] *shift. I 'Received'* [verified tire, make, and wheel half] *approximately 100 mixed tires and brakes tires and brakes that evening…. While Receiving the tires, one of our new-hire Mechanics asked if I would be able to help him with a pressurization event he had on his RON aircraft. I was about halfway through the tires and had the nose and brakes left to inspect when I went and helped this Mechanic for about 2 hours with his aircraft. After that, I returned and continued my inspections work.*

I was notified by another Mechanic that several of the nose tires I had inspected had improper parts tags on them. Three tires had been inspected by me. I verified the 3 tires were in fact incorrect and retagged them as they needed to be. I also rechecked the stack of tires and found no other discrepancies….

ASRS Alerts Issued in July 2009	
Subject of Alert	**No. of Alerts**
Aircraft or aircraft equipment	12
Airport facility or procedure	4
ATC equipment or procedures	5
Maintenance procedure	2
TOTAL	**23**

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July 2009 Report Intake	
Air Carrier/Air Taxi Pilots	2943
General Aviation Pilots	982
Controllers	42
Cabin/Mechanics/Military/Other	419
TOTAL	**4386**

I fully understand that while working as an Inspector, I work under the umbrella of Quality Control and not as a Mechanic. The Upgrade Inspectors are expected to help out with the normal RON workload and act as mechanics when they can. Management never forces this, but they routinely request it and we routinely help when we can.

The contributing [factor]*: Working outside the Inspection work area and losing focus on the task at hand…In the future, to not allow this kind of problem to occur, I will focus solely on my inspection duties...*

Situation #4: A flight instructor with an air carrier background had a "Good Grief" moment in a Cessna 152.

■ *…Entered left traffic pattern from training area. Student flying in left seat. Tower cleared us for the option 4R. Acknowledged clearance. Student stated she did not clearly hear Tower, so I repeated Tower clearance to 4R. Then made a nice pattern to touch and go on 4L. On the go Tower advised us our clearance was to 4R. My answer was 'Good grief!'*

No other traffic in the patterns or on the surface. Beautiful CAVU morning, very light quartering tailwind, familiar with airport, etc.

Possible causes: I think I must have been expecting 4L from the initial callup/startup because this is the usual procedure, but I heard and repeated 4R. Most terrible example to the student. Student not yet soloed, and still in the trusting-the-instructor-for-everything stage.

I am a high-time airline pilot who does not fly much VFR at all and lands off an ILS on almost every approach… Somehow I managed to negate years of training and experience to make such a serious mistake…To add to the embarrassment, this student and I had recently attended a FAAST [FAA Safety Team] *presentation on runway incursions and such at our home airport.*

Student Over-Reliance on the Instructor

Situation #5: During flight training, the instructor is Pilot in Command and is expected to take control of the aircraft if an emergency occurs. In such cases, the student should assist the instructor as requested and provide needed back-up. Here's a report of what happened when a Piper Turbo Seminole lost an engine, and both the student and instructor became preoccupied with the approach.

■ *We were at 4,500 feet MSL. My flight instructor was demonstrating engine-out procedures. We shut down the left engine and feathered the propeller. We maneuvered the aircraft for a few minutes on one engine. Then we discovered the propeller was stuck in the feathered position. My instructor tried calmly several times to bring the propeller out of the feathered position and restart the engine with no success. My instructor was flying the aircraft. The density altitude was high. We dropped down to 3,000 feet MSL. We decided our best option was to land at municipal airport. Our main concern was getting the landing right the first time as we knew a go-around would not be an option. I was watching his approach carefully to make sure he was not high or low. The final approach to landing was fine. However, we both became fixated on the landing itself. In the process we failed to put the landing gear down…*

My instructor was flying the aircraft and felt responsible. However, I realize that I did nothing to reduce his workload. I could have performed a simple GUMPS check which I normally do even in a fixed gear aircraft.

I believe my lack of action was due to the following factors:

- *Lack of confidence and experience in the aircraft*
- *Little experience with my instructor*
- *Lack of sleep*
- *Having a student mentality and depending totally on my instructor.*

Situation #6: A Bonanza 36 pilot receiving recurrent training in short field procedures assumed (incorrectly) that if the instructor was not intervening, things must be OK.

■ *Conditions were VMC and Runway XX was in use with ATIS reporting winds calm. Successfully executed simulated short field takeoff with 50-foot obstacle…and simulated short field landing with 50-foot obstacle…Next activity after full-stop and taxi back…was simulated short field takeoff with 50-foot obstacle. Put in approach flaps and confirmed rotation and climb speeds prior to entering runway. Positioned and held per Tower instruction.*

Once cleared for takeoff, increased throttle to full while holding yoke back fully and adding right rudder. Aircraft yawed left when nosewheel lifted so input additional right rudder. Aircraft continued to turn left requiring increasing amounts of right rudder to stay on runway and turn aircraft back toward centerline. Mains lifted off runway surface so [I] *reduced back pressure on yoke. Observed right wing dropping and attempted to correct through yoke and rudder inputs. After continued unsuccessful attempts to stabilize, instructor called 'my plane' and took controls. Confirmed 'your plane' and released controls. In the process of recovery, landing, and rollout, the aircraft departed the runway surface for the grass area to the left of the runway and impacted a taxiway sign. Stopped aircraft on taxiway, observed damage to left flap and decided not to retract the flaps. Radioed Tower confirming that we did not require assistance and intention to return to hangar…Returned to hangar and observed damage to left wingtip, left flap and wing surface at flap attach point, and left horizontal stabilizer….*

Here are my initial thoughts as to cause: I believe misunderstanding of instructions being provided and corresponding control inputs, compounded by a mistaken assumption that if the instructor was not intervening, things were OK, were the primary factors in the destabilization of the aircraft and subsequent runway excursion… Don't become complacent because you are with an instructor and fly/make decisions as you would normally (i.e., as solo pilots)….