THE PROFESSIONAL FLIGHT INSTRUCTOR

MENTOR

JANUARY/FEBRUARY 2019

VOLUME 21 NUMBER 1

Putting More Value in Evaluation

- What Are an Instructor's Responsibilities?
- The Voice of Experience
- Is Your Runway Too Short?

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CONTENTS

JANUARY/FEBRUARY 2019 VOLUME 21 NUMBER 1

Putting More Value in Evaluation, pg 12

12 Putting More Value in Evaluation
Benefits of the collaborative critique in flight instruction
By Susan Parson and Paul Preidecker

18 The Voice of Experience
Vicarious learning works
By Joe Clark

26 What Are an Instructor's Responsibilities?
When to speak, when to stay silent
By Terry Hocking

DEPARTMENTS

5 Your Feedback
8 NAFI News

COMMENTARY

3 **Position Report**
A Look Back at the Old Year
By Robert Meder, NAFI Board Chairman

32 **A Look Back: Pilots Who Are Scared to Fly?**
How to work with students who exhibit symptoms of fear
By Natalie Bingham Hoover

36 **Is Your Runway Too Short?**
What do you want to see if an engine fails on takeoff?
By Gary Reeves

MENTOR

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Mentor is a how-to magazine dedicated to improving the teaching skills of aviation instructors of all disciplines

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position **Report**

Robert Meder,
NAFI Board Chairman

A Look Back at the Old Year

It's hard to believe that 2019 is here already. It seems to me that I turned in my January 2018 Position Report just a day or so ago, and here I am writing the first one of 2019. This is something that is surprisingly common. All through the holidays, I hear people say over and over, "Where did the year go?" I can't speak to the experiences of earlier generations, but it seems to me that, with the ever-quickening news cycles, social media, electronic readers (I can't tell you the last time I bought an actual hardcover book), and on and on, things keep moving faster. You may remember the scene in *Back to the Future Part II* where Marty McFly Jr. turns on a large flat-screen TV and asked for about 15 channels at one time. It looks like Robert Zemeckis and Bob Gale got that prediction right.

These thoughts, along with a conversation with NAFI's Director of Publications David Hipschman, prompted me to go back over my Position Reports for the last year. It seems that it all went by in a blur, so I was curious about what themes I wrote about and if there was a consistency to them. It's been kind of an interesting experiment, feeling both personal and dispassionate at the same time.

The first thing I noticed about my musings is that I always seem to be amazed at the changes that have occurred in my lifetime. I was born when Constellations, DC-4s, and Stratocruisers were the royalty of the skies. When I was young the venerable DC-3 wasn't yet considered a "classic," but just a handmaiden of aviation. Boeing and Douglas jets were new and flashy. Now we're witnessing the *retirement* of entire fleets of 747s in favor of more advanced aircraft, although none as beautiful. I also often wrote about how much has changed in general aviation, mostly for the better. Avionics have improved, the use of tablets for flight planning and navigation, noise-canceling headsets, and so on. At the same time, though, I've noted that some changes, such as the pressure on GA airports and fewer GA aircraft, are lamentable.

Another thing that I've found is critically important to me is professionalism. It is something that is either the primary focus of a column or something I sneak in while writing about other topics. In fact, if you haven't realized I've done it again, you're not paying attention. I've pondered why this is a recurring subject for me. It's easy to dismiss it as my being the "old guy" harping on the "young instructors," but that isn't it. In almost the same breath that I talk about being professional and encouraging everyone to strive for a higher standard, I also say, repeatedly, "Lighten up. Have fun."

Be professional and have fun? Aren't those mutually exclusive goals? In one column, I spoke about the huge responsibility we bear when we train students, at any level, how to fly. Our influence on their safety and that of those who fly with them is tremendous and exceedingly important. We have to strive to improve all the time, I declare. I encourage everyone to take part in mentoring others and participate in NAFI programs such as Mentor*LIVE* and the Professional Development Program. Yet in another report, I quote the late Pete Conrad as exclaiming "Whoopie" when he first set foot on the moon. How is this reconciled in my mind?

I've tried to encourage us to constantly improve and grow as instructors.

Simple — flying is serious fun. Done correctly and professionally, I can't think of anything that is more satisfying. Whether executing an approach to minimums or having some fun in an aerobatic aircraft, there's not a lot that can beat the feeling. Except, perhaps, showing someone else how to do these things safely and well.

That brings me to yet another favorite theme: risk management. Now many of you will recoil at that term, saying that it's all about safety. I'm fine with that. In my mind, they're really the same thing expressed different ways. No matter the terminology, we and our students need to go home every day without injury. We want to impart the judgment and skills that help them make the right decisions and use the equipment in such a way that nothing happens to them. In one column, I quoted the Hippocratic oath sworn by physicians. "To abstain from harm" is a wonderful guiding light for all instructors and mentors. Thinking through the consequences of our actions and words and passing that on to our students is something that I am convinced is our highest duty.

position **Report**

Looking back over the year, that's a lot of words, around 150,000 of them, that have revolved around where we've been, where we're going, how and why we're going to get there, at least from my perspective. In those words, I've tried to encourage us to constantly improve and grow as instructors. Along the way, I've tried not to be boring or repetitive, and maybe a bit humorous. And I will admit to wincing at a couple of sentences that I've written, but, overall, I'm pleased with the product.

There is one theme that I haven't mentioned.. In reading my words from the past year, I note that I am always coming back to the human element. I am always talking about how instructors and students relate to each other. Whether I'm discussing being empathetic, setting a good example, being firm, supportive, mentoring, or simply being a friend (sometimes all at the same time), it always comes back to people. And that's as it should be. Someone, I believe it was Tom Poberezny, once said that without people, airplanes would just be lawn ornaments. And that is true, for it is the human in us that appreciates the beauty and wonder of what we've accomplished. It is only through the essentials of communication that we can share these experiences. And communication takes many forms, whether it's Ernest K. Gann sharing his aviation career with us in *Fate Is the Hunter*, pilots engaging in hangar talk, or, perhaps most important, the form of communication that we call "educating."

Someone, I believe it was Tom Poberezny, once said that without people, airplanes would just be lawn ornaments. And that is true, for it is the human in us that appreciates the beauty and wonder of what we've accomplished.

If there's anything of which I can be proud in the last year and in years past, it is that last thought. Knowing that not just I, but all of us, as both instructors and mentors, have a positive effect on the people who we touch. We can all be proud that we can look back on what we have done and said for the betterment of others and ourselves. And we can use that to humbly continue to build a better future for everyone.

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YOUR FEEDBACK

Your Student Had an Accident

Insurance coverage for aircraft is complex, as shown by Larry Bothe's excellent article, "Your Student Had an Accident ..." (*Mentor*, Nov/Dec 2018). After 51 years of flying, 43 years of instructing and 35 years as an aviation lawyer and claims manager, I know that few pilots understand insurance and few owners read their policies until after they've pranged an airplane.

One example of the misunderstandings held by many CFIs is the difference between being an "approved" pilot and an "insured" pilot. An approved pilot is one who will not invalidate the coverage while flying the airplane. An insured pilot is one whom the insurer will defend and indemnify for losses if that pilot is held liable. If an approved pilot is held liable for a loss, the insurer won't be required to defend the pilot in a lawsuit. Worse, the insurer may pay off the loss and then come after the approved pilot for reimbursement of what was paid. An insured pilot will be defended in the lawsuits and protected from financial loss to the extent of the policy limits, assuming there are no other problems with the coverage.

Insurance companies are not just trying to be tricky. All insurance is dependent upon underwriters' ability to understand and calculate the risks they are covering. Failure to do so leads to financial crashes, and the road is littered with aviation insurers that failed because they did not adequately limit exposures or set rates sufficient to cover losses. It's not a business for the faint of heart. With hull values of $300-400K, and injury judgments in seven figures, think about how many Cessna 172s an underwriter has to insure at $1,500 a pop to cover one broken neck and one total loss!

W.T. McSwain
Williamsburg, Virginia

Larry, enjoyed your article ... (*Mentor*, Nov/Dec 2018). The part about the insurance interaction was enlightening.

The part about the signing off and checking for signoffs on high-performance, complex and tailwheel endorsements caught my attention. I gave a flight review about a month ago to a new acquaintance in a PA-235 that he had owned for over three years and had flown quite a bit, but not too much in the last year due to maintenance issues and him moving.

He did a satisfactory job on the review, and I signed him off. A few days later, I called him and asked him how a flight he was planning on taking went. I then offered to give him some additional ground instruction relating to possible future training, and in the discussion it came up that he had never been signed off for high-performance aircraft. I felt frustrated at myself that I had failed to check that out, and he said that when he was checked out in the aircraft, the instructor told him he was good to fly solo. He had also had prior flight reviews in the aircraft!

He was not aware of the requirements of 61.31(f). It was a good reminder to me not to assume that someone has been signed off for something just because they have been flying the aircraft for some years!

Don Knight

Larry Bothe responds: Thanks for the kind words about my article. Don't forget that there are quite a few people like me who flew complex, high-performance and tailwheel, all before endorsements for those operations were required. We don't have any of those endorsements, and we are not required to have them. The regulations "grandfather" those of us who flew those airplanes before the rules were enacted. But you do have to have a written record (your pilot logbook) that substantiates the fact that you flew the planes before the effective date of the applicable regulation.

Naming Fixes

I loved Bob Meder's article in *eMentor* (Dec. 26, 2018) about fix names. I once got to personally name a final approach fix.

I lived near Chicago in the '90s and flew with the Businessmen's Flying Club out of Naper Aero Estates (LL10). We and our sister club at LL10, the Naperville Flying Club, wanted an instrument approach. For a fee (I forget what the charge was at the time) the FAA said they would create one off the Joliet VOR. We agreed to pay, but the FAA took half of forever. We would periodically call the FAA and bug them about getting it done. Mostly they just blew us off and said it didn't have a very high priority. Then I called one day and the response was, "I

Editor's note: *Mentor encourages letters to the Feedback section. These pages "belong" to the membership and letters will only be edited for spelling and length. However, the editor will not publish personal attacks, or allow arguments over religion. Opinions on flight instruction, and other subjects, vary widely among NAFI's membership. The editor is not a censor. If you disagree with the content of a letter it is your privilege to respond via the Feedback section. These pages are intended to be a conversation among members.*

have it right here on the drawing board. What do you want to name the final approach fix?" I was like, stunned. Holy crap, they were actually doing it! But I recovered in a couple of nanoseconds and immediately told the guy to name it FINZR in honor of Vern Finzer, one of the founders of the airport.

For those of us of a certain age, Vern flew for American Airlines. There was an AA ad on TV where an airplane (propeller-driven) lands and is taxiing in, and the cockpit windows have been slid open and a little American flag is flying on each side. Vern Finzer was the captain of that flight. I had the honor of knowing Vern and attending picnics at his home in (I think) Downers Grove.

Larry Bothe

Climate Change

Imagine my surprise this month receiving not one but two publications pronouncing climate change to be a problem to be reckoned with. NAFI *Mentor* was one such publication. Ordinarily I enjoy the thoughtful articles related to flight training, but this month's cover article titled "Climate Change and Flight Training" left me feeling, well, cold. I am old enough to have survived the blizzard of '77, and the alarmists who proclaimed the coming of the next ice age (seriously, look it up). Well that hasn't happened so the climate change industry moved to "global warming" (all in the span of 30 years). Then if that was not enough, we are now into the final phase of "global climate change" so that any deviance in temperature, snowfall, rainfall, hurricanes, tornadoes, etc. is blamed on "climate change." Too hot in the summer, too cold in the winter — my goodness, it must be due to climate change! Seriously?

For those of you who have not read anything about weather beyond AC 00-6B *Aviation Weather and the Pilot's Handbook of Aeronautical Knowledge*, let me tell you something you may not know. Thousands of years ago glaciers covered the area of the United States near Cincinnati, Ohio, where I was born[1]. Yes, glaciers, thousands of feet thick, in Ohio. If you fly to Oshkosh for AirVenture, you fly over glacial moraines left by retreating glaciers that were there thousands of years before man flew the first aircraft at Kitty Hawk[2]. How did that happen without man's influence on climate? Maybe man is not as big an influence on climate change as some pundits proclaim. The climate change dogma so loudly proclaimed by the political left is challenged by other scientists[3].

1: https://case.edu/affil/sigmaxi/Other/Ice_Age_in_Ohio.pdf
2: https://wgnhs.uwex.edu/wisconsin-geology/ice-age/
3: https://www.nas.org/articles/Estimated_40_Percent_of_Scientists_Doubt_Manmade_Global_Warming
4: https://e360.yale.edu/features/the_case_against_ethanol_bad_for_environment

So let's get serious about this climate thing. Climate has always changed. It always will. Look around you and witness the evidence nature has left behind. Our planet is currently in the midst of a warming period. That's probably better than a cooling period. Think about that for a moment — who wants a glacier in Ohio again?

The climate change industry and their supporters like Alec Baldwin, Al Gore and Tom Steyer jet off to the climate conferences in Paris and Davos on their Gulfstreams advocating for carbon taxes on the working CFI in a Cessna 172 who is supposed to just suck it up. I cannot square this with Mr. Burton's opinions. His article advocates CFIs to use simulators in flight training instead of aircraft and to use more environmentally friendly fuels to reduce our impact on the climate. While the aviation and fuels industry has been working on an unleaded gasoline fuel substitute for quite some time, there does not appear to be a solution commercially available. Read about the environmental impact of ethanol production for use as a gasoline filler and you might be dissuaded from alternative fuels altogether[4]. Using simulators instead of aircraft for flight training has been around for quite some time but is probably economically unattainable for most CFIs and small flight schools. Besides when I want to go to Cincinnati for the weekend, I jump in my aircraft and fly there — my simulator will not get me there in a reasonable amount of time. Meanwhile, I hope that NAFI *Mentor* comes in from the cold or warm or whatever the weather is today!

Jeff Edwards, Ph.D., ATP, CFI, former DPE, 2003 National CFI of the Year

"Climate Change and Flight Training"? What a stupid article. Even if we were to accept what some political activists claim regarding "man-made climate change," which most pilots do not, even the outlandish of the "warmers" claim a worldwide warming of a very tiny amount that would have no consequences at all for the next 20 or more years. To even suggest that there would be any effect at all on flight training as a result is utter nonsense. There are far greater changes in weather, warmer and colder season to season and location to location every year, than any so-called man-made change would be possible to even notice.

If I had not recently renewed my membership to NAFI, I would not just as a result of your publishing such political trash.

Do something actually helpful to CFIs instead of politicizing.

Boots

NAFI NEWS

NAFI SEEKS NEW BOARD MEMBERS

Due to the recent resignation of Tom Turner, and several impending term limits on the NAFI board of directors, NAFI is seeking members interested in filling openings on its board. We are seeking individuals who wish to help us continue to raise the bar of instructor professionalism and proficiency. This is an opportunity to help your peers and the entire aviation community as a volunteer member of the NAFI board of directors.

If you have previously expressed interest in serving on the board and are still interested, please send me an email with any updates to your résumé. Of course, if you have not applied before, simply send me an email with your résumé for consideration. Send them to *rmeder@NAFInet.org*. I look forward to hearing from you.

Meanwhile, on behalf of NAFI's membership, its staff and the board of directors, I wish to thank Tom Turner for his unstintingly hard work as a board member. Due to the press of his duties at the American Bonanza Society, he has elected to step down from our board. He remains steadfast in helping NAFI further its goals, and we look forward to continuing to work with him and the ABS.

— Bob Meder, NAFI Board Chair

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Category _____ Class _____ Rating(s) _____

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Members of the *National Association of Flight Instructors* work as independent instructors, at flight schools, universities, FBOs, corporate flight departments and in the military. Since 1967, NAFI and its members, who teach in 30 countries, are dedicated to increasing and maintaining the professionalism of flight instruction. NAFI members influence active pilots daily: students working to become pilots, current pilots training to advance their skills with new ratings or certificates and pilots who seek to improve their skills with recurrent training. NAFI also serves as an advocate with industry and government as a voice for flight instruction. NAFI helps shape the current and future direction of flight training. For more information about NAFI or the NAFI Master Instructor program, call *866-806-6156* or visit *www.NAFINet.org.*

DONALD KAYE
EARNS NINTH NAFI MASTER INSTRUCTOR ACCREDITATION

The National Association of Flight Instructors is proud to announce that NAFI member Donald Kaye has earned accreditation as a NAFI Master Flight Instructor. This is Kaye's ninth consecutive NAFI Master Instructor accreditation.

Kaye was born in Canton, Ohio, and says he was interested in aviation from an early age. After getting his Bachelor of Science degree in electrical engineering, he went to work for Kaiser Aerospace and Electronics. Most of his colleagues there had their pilot certificates, and in early 1968 he became a private pilot. A year later he got his commercial certificate.

From 1970 until 1992, his time was consumed with the business aspects of life including becoming a real estate broker selling apartment houses, a real estate developer and a longtime real estate investor. An issue of *Flying* magazine with a Mooney TLS on the cover drew his attention fully back to flying. He soon earned his instrument rating, and within a month purchased a Mooney TLS. Thereafter, he achieved his instructor and instrument instructor ratings and started teaching full time, specializing in teaching in all models of Mooneys. His ATP certification followed.

For many years he taught both the primary Mooney Pilot Proficiency Course and its corresponding Mountain Flying Course. After a student of one of his students bought a King Air C90, he earned his multiengine and multiengine instructor ratings and began also teaching the multiengine rating. Shortly thereafter the same student bought a CJ1, and the Citation CE-525S ATP was added to his credentials.

With over 11,000 hours of total GA time, 6,100 hours have been devoted to teaching. He has traveled to Canada, Australia and even North Dakota in the middle of January to assist those interested in learning the art of flying.

Several years ago he upgraded the panel of his airplane to the latest in aviation technology. With the experience gained in the use of all this new technology, he has been able to guide students on both purchases of such technology and on how best to use it to provide for the safest flight possible.

NAFI NEWS

MICHAEL (TODD) SHELLNUT EARNS SECOND NAFI MASTER INSTRUCTOR ACCREDITATION

The National Association of Flight Instructors is proud to announce that NAFI member Michael "Todd" Shellnut has earned accreditation as a NAFI Master Flight Instructor.

Shellnut has been working in the flight training industry for 18 years, and says that despite performing many duties from corporate pilot to FAA designated pilot examiner, he has always found his way back to his true passion of flight instruction.

This is his second nomination as a Master CFI. He was named AOPA's Best Instructor for 2015 and Distinguished Flight Instructor for 2017 and 2018. Shellnut is a published author of aviation training texts, is an active FAASTeam member for the Atlanta FSDO and is currently working for ATP Flight School as the CFI Academy Standardization Manager, where he is responsible for the multiple locations across the country for CFI initial training.

JEREMY HAND EARNS NAFI MASTER INSTRUCTOR ACCREDITATION

The National Association of Flight Instructors is proud to announce that NAFI member Jeremy Hand has earned accreditation as a NAFI Master Flight Instructor.

Hand grew up along the final approach corridor for Phoenix Sky Harbor watching airliners fly over his house. He enrolled in ASU's Aviation Management Technology bachelor's degree program in the fall of 2001, chasing a childhood dream of being an airline pilot. Hand attained his private pilot certificate in 2002 and proceeded to log his first couple hundred hours over the course of about two years.

Due to a downturn in the industry after 2001 Hand began a decade in various lines of work, but his passion for flying never disappeared, and he re-entered the field. He then worked to achieve his instrument, multi, and commercial training with ATP Flight School's Airline Career Pilot Program. His CFI, CFII, and MEI ratings soon followed. He has been instructing for ATP ever since, helping to train students from zero time all the way through commercial and CFI certificates. Hand is now quickly approaching his 1,000th hour of dual given and says he "loves every minute of it!"

For the last year he has been a lead instructor at ATP and conducts many of the stage checks and mock checkrides for students as they progress through their training syllabus. During that time, he added AGI and IGI ratings, as well as attaining FAA Gold Seal instructor status. In his spare time, he also pursues volunteer work with Angel Flight and the Boy Scouts of America.

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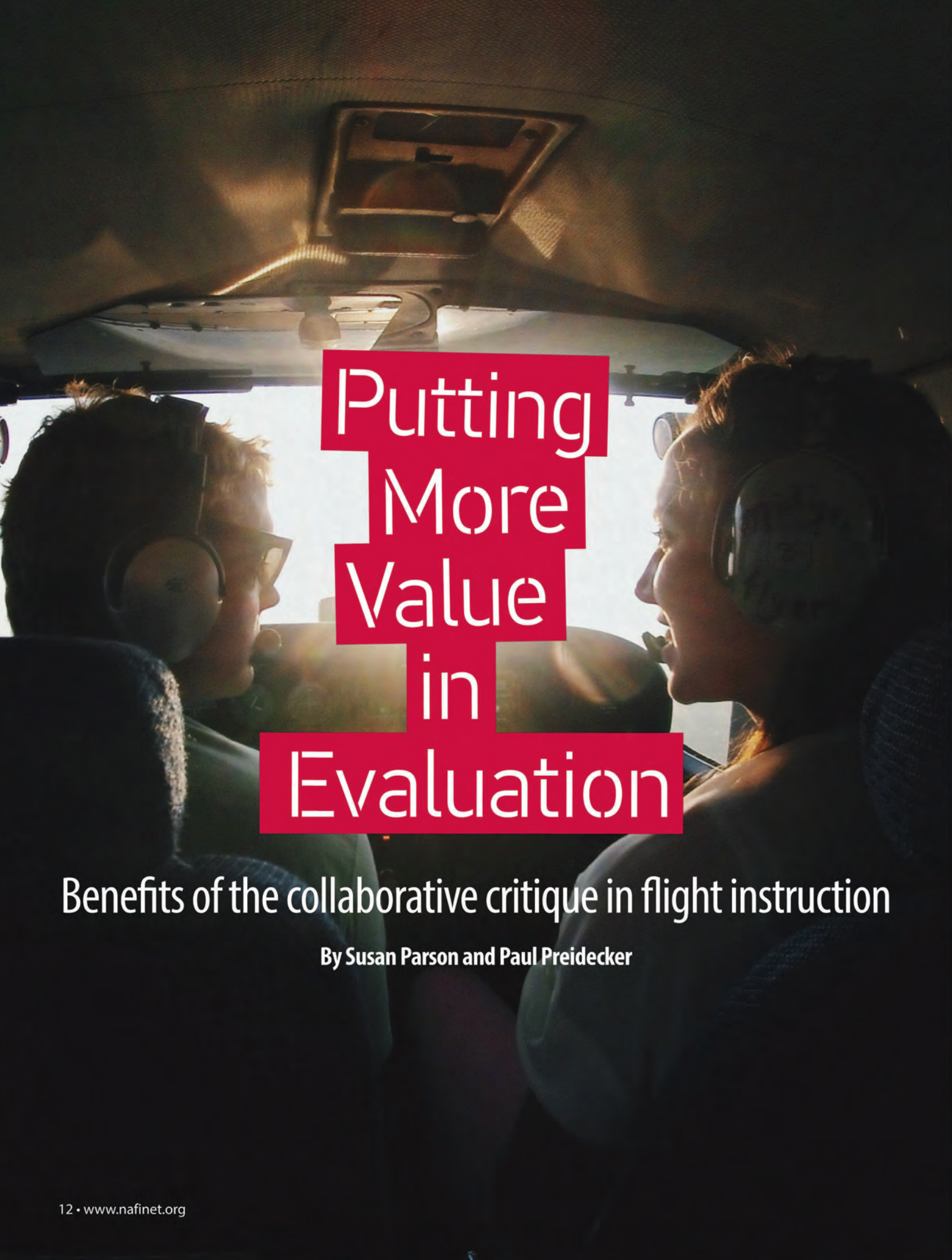


Putting More Value in Evaluation

Benefits of the collaborative critique in flight instruction

By Susan Parson and Paul Preidecker

***Editor's note:** The following article is a companion piece to the MentorLIVE broadcast scheduled to be presented by Susan Parson and Paul Preidecker on Feb. 20, 2019. For more information, and to participate, visit the NAFI website and under "Quick Links" select MentorLIVE.*

Education methods are evolving, but most of us are still accustomed to the "sage on the stage" model: the teacher talks while the learner listens and, at least in theory, learns through absorbing the teacher's vast wisdom. Because that's what we experienced, that is often the way we operate when we find ourselves in the role of teacher.

Flight instructor training tends to reinforce this model, because it emphasizes being able to teach, a skill most often judged by the instructor candidate's ability to talk — a lot. We are exhorted to greet pilot trainees with a carefully prepared preflight briefing. During the flight, we take pride in our ability to spout appropriate "instructional knowledge" on the maneuvers *du jour*. We chatter while securing the airplane. Then comes the post-flight debriefing. In many cases, the instructor whips out a sheet of notes and marches efficiently down the list of the day's bobbles, mistakes, and gold stars. By the time the pilot in training is invited to speak, he or she is often so dazed and overwhelmed that quick escape is the primary goal.

There's a better way: Sage-on-the-stage, meet guide-on-the-side.

There's a cliché that teachers learn most from their students, and certainly that's how one of us (Susan) developed a technique later incorporated into the FAA *Aviation Instructor's Handbook* (FAA-8083-9A) as the "collaborative critique." It all started with Helen (not her real name), a private pilot trainee who cringed through every debriefing, no matter how diplomatically delivered. Her fixation on avoiding bad grades and mistakes of any kind became a major impediment to her progress, because she didn't want to do anything without direct instructions from the right seat.

The turning point — not just for Helen, but also for Susan — came on Helen's first dual cross-country flight to a towered airport. Overwhelmed and terrified of the scalding scolding she thought she deserved on the basis of her mistakes — all common errors for that stage of training — Helen was in tears by the time they shut down. For once, Susan had the good sense to stow her notes and simply ask Helen to describe the flight from her point of view — in effect, to grade herself. Helen's self-confidence grew as she realized that her mistakes were actually pretty minor, and that her perceptions of how the flight had gone were accurate and valid. Susan's confidence in Helen's judgment increased significantly. She also realized that having Helen replay the flight and reflect on what had gone well (or not) was a much better way to assess higher-order thinking skills than attempts at mind reading.

Experimentation on future training flights, and with other trainees, led to ditching the knowing authority style of post-flight debriefing in favor of a collaborative critique involving five steps: replay, reconstruct, reflect, redirect and review. Three of these steps (replay, reconstruct and review) relate primarily to a specific maneuver or lesson, while the other two (reflect and redirect) are intended to promote higher-order thinking skills. Here's how it works.

Replay: Learner talks, teacher listens

I'm not proposing objective truth, but subjective reactions; a review should reflect the immediate experience.
— Roger Ebert

Step one is to have the pilot trainee verbally replay a maneuver or a lesson while you simply listen.

Part of the instructor's role is to help trainees integrate their perceptions into meaningful insights. When we play sage on the stage, we are essentially asking the trainee to develop those insights based on *our* perceptions rather than their own. Also, an instructor who does all of the talking implicitly teaches the trainee that he or she doesn't have to pay close attention. When the pilot trainee knows that the post-flight discussion always starts with giving a complete replay of the flight, he or she is more engaged, and highly motivated to self-monitor throughout the lesson. An added benefit is that the replay requirement helps develop the habit of maintaining situational awareness.

So, rather than starting the next post-flight debriefing with a laundry list of areas for improvement, ask the pilot to replay the flight for you. Listen carefully for those areas where your perceptions don't match those of the trainee. Explore why it looked different to him or her. This approach will give the learner regular opportunities to validate his or her own perceptions, and it will give you, the instructor, critical insight into how the trainee's judgment is developing.

While we recommend starting with the pilot trainee's verbal replay, there's no reason you can't subsequently use material from a camera or a flight-tracking app as a tool for a more literal replay of the day's activities.

Reconstruct: What didn't work (and what DID work)

We've all heard that we have to learn from our mistakes, but I think it's more important to learn from successes. If you learn only from your mistakes, you are inclined to learn only errors.
— Norman Vincent Peale

Once the replay phase has identified issues for further discussion, ask the trainee to reconstruct by identifying the "would'a could'a should'a" elements of the flight — that is, the key things that he or she *would have, could have*, or *should have* done differently. Most pilots we know are simply bursting with would'a, could'a, should'a reconstructions after every flight. Consequently, once you open the floodgate with a "what would you have done differently" question, you will have three challenges.

The first is to help organize the trainee's responses into meaningful insights — in short, to direct those sometimes-meandering stream-of-consciousness would'a, could'a, should'a observations into an instructionally useful formation.

The second — and it's a big one — is to maintain the balance between helpful self-evaluation and destructive self-flagellation. Reference to the appropriate certification standards (see below for more on this topic) can help. Another technique is reminding the trainee that mistakes are not failures, but a normal and expected part of any learning or training process.

The third is to be sure to celebrate success. Reconstructing what went right, and how it was accomplished, has multiple benefits. It helps the trainee understand and build on knowledge and skills that have been mastered, it provides positive reinforcement, and it mitigates self-flagellation tendencies. You may want to make it a point to always have the trainee conclude this phase of the critique with the "things I did well today" discussion.

Reflect: Reflective learners are effective learners.

Follow effective action with quiet reflection. From the quiet reflection will come even more effective action.

— Peter Drucker

Insights come from investing perceptions and experiences with meaning. This process requires reflection, a process in which the trainee relates new concepts and ideas to existing knowledge.

The pilot personality sometimes tends to regard reflection as one of those squishy, touchy-feely concepts more appropriate to the psychiatrist's couch than to the pilot's cockpit. Not so. Reflection involves having the trainee explicitly identify thinking processes that you cannot see, and that he or she may not have consciously recognized. A key part of your goal in this stage of the collaborative critique is to have the trainee turn the covert into the overt: condense any vaporous clouds of confusion into visible moisture that you can mop up with a better explanation or more targeted training. For example, Susan once had a private pilot trainee who trembled at the slightest bit of turbulence. By having him reflect on why he was so spooked by aerial potholes, we were able to isolate the specific things that bothered him and address them head on.

To encourage reflection, here are some questions you might ask:

What was the most important thing you learned today? (*Note: Discussion of new skills will probably dominate in the early stages of training, but listen for, and encourage, reflection on decision-making and risk management once the trainee has attained proficiency in basic maneuvers.*)

What part of the lesson was easiest for you? What part was hardest? What made it easy (or hard)?

Did anything make you uncomfortable? If so, what was it? When in the lesson (or maneuver) did it occur? How and why did it make you uncomfortable?

How would you assess your performance and your decisions?

Redirect: How will you apply these insights to the next flight?

There are three principal means of acquiring knowledge … observation of nature, reflection, and experimentation. Observation collects facts; reflection combines them; experimentation verifies the result of that combination. — Denis Diderot

The final step in the collaborative critique process is to help the trainee correlate lessons just learned with past experiences, and then consider how to apply those insights to future flights. For example, on a dual cross-country flight one summer day, the trainee encountered unexpected weather that required a diversion to an alternate airport. Here are some of the questions you can use to encourage "redirect" thinking:

How does this experience relate to conditions that you have experienced in previous lessons?

Now that you have had this experience, what might you do to avoid or mitigate a similar risk in a future flight?

Which elements might be unique to this flight, and why?

Which aspects of this experience might apply to future flights, and how?

Review: How did performance align with the certification standards?

While not mentioned in the FAA Aviation Instructor's Handbook, we stress that there is an important fifth step in the collaborative critique. A regular component of the post-flight debriefing should be having the trainee review and self-assess his or her performance with reference to the appropriate Airman Certification Standards (ACS) or Practical Test Standards (PTS). Especially for maneuvers, reference to the ACS provides both instructors and trainees with an objective standard to measure and discuss progress.

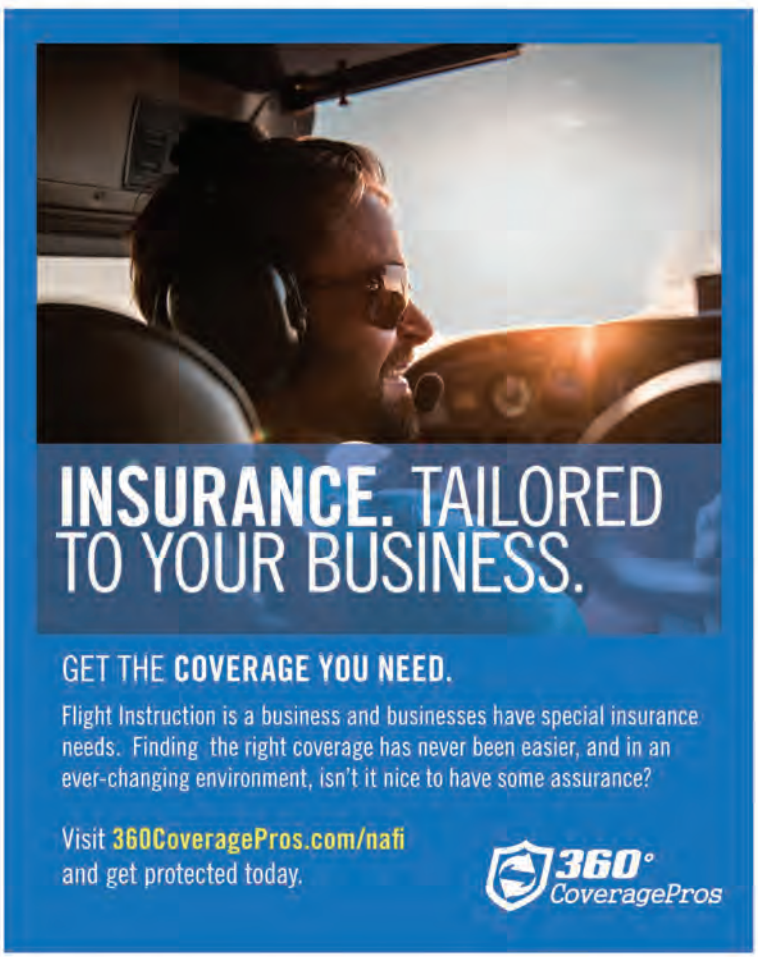
Guide on the (Right) Side

Acquiring fluency in the collaborative critique is also useful to those instructors and trainees with an eye on flying for the airlines. Paul had extensive GA experience before moving to the Part 121 air carrier world, which knows and practices a similar technique called the "facilitated debrief." Pilots familiar with this approach may be better equipped to cope with the fast-paced airline-training environment, because they have already gained proficiency in monitoring and evaluating their own performance.

Change is never easy, and shifting gears from the familiar "sage on the stage" to the "guide on the (right) side" approach can admittedly be a challenge. It's well worth the effort. Since life gives only the real-world test and rarely grades on a curve, collaborative critique is one of the most effective ways for both the instructor and the trainee to be confident that the trainee has truly mastered not only the physical stick-and-rudder skills, but also the self-awareness and judgment needed for safe operation in real-world flying.

Susan Parson *is an active general aviation pilot and serves as Special Assistant in the FAA Flight Standards Service executive office. She is editor of FAA Safety Briefing magazine, and lead on the ACS project. She holds an ATP certificate, ground and flight instructor certificates with instrument, single engine, and multi-engine land ratings. She instructs for her Leesburg-based C-182 flying club and the Civil Air Patrol.*

Paul Preidecker *is chief flight instructor and examiner for a regional airline, has 7,500 hours, an ATP certificate and type ratings in the CL-65 and Do-328. He's a simulator and line check airman, FAA aircrew program designee, and FAA designated observer with 6,800-plus hours of instruction given in Part 61 and Part 121 operations. He volunteers on the NAFI Professional Development Program committee and in many other capacities with industry and the FAA and serves as a member of the NAFI board of directors. He aims to contribute to aviation safety by blending accepted best practices between GA and Part 121.*



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The Voice of Experience

Vicarious learning works

By Joe Clark

You are the world's greatest flight instructor, right? No one can teach flying or aviation better than you, correct? After all, you are the very best, aren't you?

Unfortunately, even if you are at the very top of the teaching pyramid, you are not the best. You may be terrific, but experience is a far better instructor than most of us will ever become. Just ask any pilot — and if you are really gutsy, take a close, introspective look into your own flying. Honest pilots will always admit they learned the most from flights when they were alone, flights without a flight instructor. Flights in which there was no one other than them on which to depend.

I enjoy talking with my colleagues at work. Our interests, of course, include aviation, automation, unmanned aerial vehicles and, quite naturally, aviation education. There is always plenty of good debate on the best way to teach systems, regulations or procedures. Recently, I found myself standing in Assistant Professor Anthony Galante's office, and during our discussion of aviation accidents and law enforcement procedures, he said something profound, a truth every aviator, soldier, firefighter and police officer knows is honest.

"All of us alive today are living because we have learned by experience what or what not to do," Galante intoned. Right away, I felt a sense of agreement with his statement, as well as experiencing memories of my past lessons learned the hard way. Lessons I was lucky enough to survive.

We chuckled together after one of us uttered that famous quote, "I'll never do that again!" We know many pilots have said the same thing.

Those are the lessons we learned in life that stay with us forever. Indeed, as Galante implied, all of us alive today are living because we have learned the lessons of experience. Those are the nebulous lessons we learn all on our own and are able to use to continue living our lives. Each day. Safely.

Indeed, ask almost any pilot where their best flying lessons came from, and most will say from a solo experience in which they were frightfully scared. Possibly practically frightened to death. These events tend to be very intense. They rank right up there with one of those educational laws, the law of intensity — straight out of the FAA's *Fundamentals of Instruction*.

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I don't remember talking to approach. Did I check in with the tower? Did they clear me to land? Oh crap! I don't remember putting down the gear!

When a peace officer or pilot learns a lesson like that, the lesson tends to stay with them perpetually.

Every one of us has had some of those experiences, lessons learned the hard way. When it comes to flight instruction, the question becomes, how can we teach our flight students those lessons? You sure can't go out and repeat a lesson for their benefit, an experience that almost got you killed in the first place. You can't crash airplanes to teach students how not to crash.

So, just how can you transfer that knowledge, that lesson, safely? And will they get it? And how do you test them on the lesson? The quick and simple answer is, you can't. But there is a way for them to pick up some of the lessons that almost killed others, as well as those that did.

Like a parent teaching a child, one crucial aspect of flight instructing is how to prepare your students to avoid hurting themselves in an accident. You can't go out and give your students dual instruction in having an accident just to teach them how to avoid accidents. However, they can learn about accidents vicariously. Not only can they learn this way, but they also need to make it a serious study.

So where do you start these valuable lessons as a flight instructor?

To begin with, be honest with your students and tell them about the mistakes you have made and the lessons you learned from those mistakes. This is the first place students will have the chance to develop a professional interest in incidents and accidents and, more importantly, accident avoidance. Presented correctly, your students should develop a healthy interest in studying accidents.

In my case, one of the most profound lessons I learned was as a Part 135 pilot. I was running my $6 million in canceled checks from Tampa to Orlando when I suddenly found myself in the landing flare with the following thoughts: *I don't remember talking to approach. Did I check in with the tower? Did they clear me to land? Oh crap! I don't remember putting down the gear!* Luckily for me, as I applied power to go around, the wheels chirped down onto the concrete. (Automaticity is a beautiful thing.)

I found myself in this predicament as a result of fatigue and lack of sleep. The maintenance shop woke me up at 2 o'clock in the afternoon, which was my 2 o'clock in the morning. The mechanics needed clarification on a gripe on the airplane I flew the evening before. I never got back to sleep. I should have called in sick, but because the dispatcher told me three other pilots had already canceled for the night, I succumbed to his begging for me to come into work. Bad mistake.

However, some positives resulted from the event. My personal habit pattern for performing the GUMPS check changed forever. Now, when I am flying or teaching in VFR conditions, I perform a GUMPS check right after extending the landing gear. Then I turn base and repeat the process. And then passing through 200 feet AGL, VFR or IFR, I take one last look at the gear indicators to make sure I see three down and locked.

When teaching in high-performance airplanes, I tell my students about this event. I give them the opportunity to understand what happened to me and why. It helps to instill good habit patterns in their flying from the very beginning. They get the story, they can learn from my experience and, hopefully, they will not repeat what happened to me. I was lucky; I did not have an accident.

The reason your students should develop a healthy interest in studying accidents is to enable them to learn how to crash an airplane without actually destroying an aircraft. Or hurting themselves. As flight instructors, historically we have not taught our students the importance of crashing properly. It is something we try to avoid (crashing). Additionally, we have failed in talking with our students about safe methods to impact the ground if we find ourselves in a bad situation.

1st Lieutenant James R. Polkinghorne Jr., USAAF, was born in Pensacola, Florida in June 1921 and earned his U.S. Army Air Forces pilot wings as part of the famed Tuskegee Airmen in February 1943. Assigned to the 301st Fighter Squadron, he disappeared in May 1944 while flying a combat mission in a P-39 Airacobra over Italy. Packed with illustrations, *Lost in Heaven* also chronicles the achievements of early black aviation pioneers who refused to be denied the opportunity to enjoy the splendors of flight.

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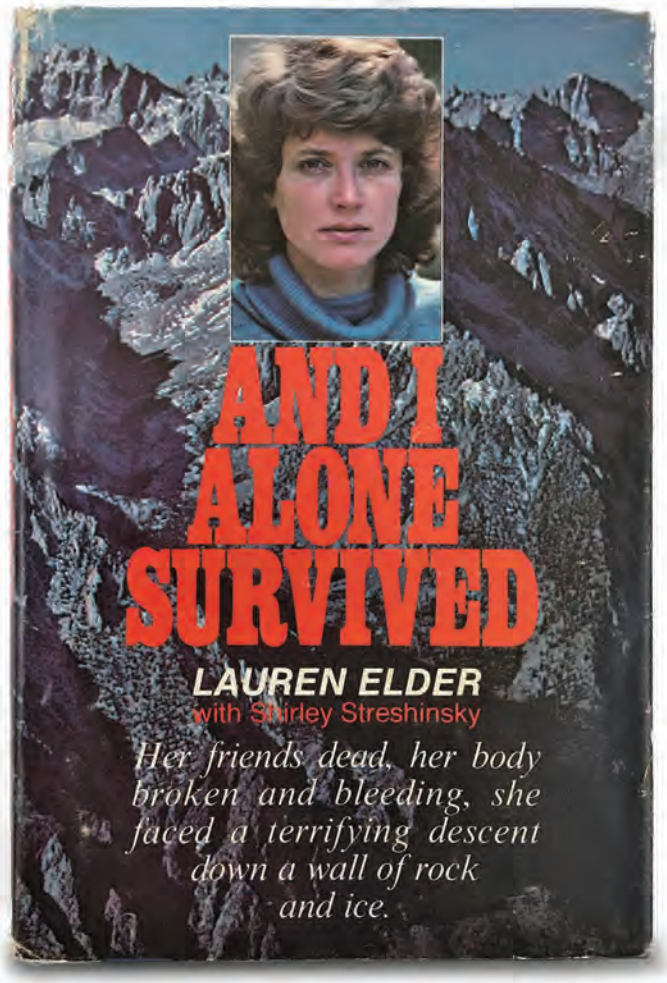

It is a riveting story that once started is difficult to put down until finished. In the process of reading, readers can learn a lot about what techniques, common sense and other aspects of survival it takes to live.

Flight instructors should focus on helping each student develop an interest in avoiding incidents and accidents by giving them the gift of vicarious learning. Students need to read various materials to learn what other pilots experienced during an incident or accident in which they were involved. Unfortunately, this new generation of student pilots tends to dislike active reading. We "older hands" need to learn how to gently prod student pilots into the practice of reading.

Today's students have entirely different reading habits compared to generations of students before. Their preferred reading method involves 5- to 15-minute reading intervals from an electronic device. They seek immediate meaning in short bursts of reading. They avoid reading longer articles and chapters that require mental interpretation.

However, accident investigation requires that kind of reading with an emphasis on synthesis of knowledge. Granted, that sort of reading and study is a bit challenging and tedious. Your job as a flight instructor is to spice it up for students; somehow you must entice your students into the concept of vicarious learning.

When it comes to learning, reading government publications such as the *Pilot's Handbook of Aeronautical Knowledge*, or any of the other books produced by the FAA as well as commercial vendors, can be, well, a bit boring. Sometimes, it may require considerable effort for a student to stay awake.

There are alternatives to those textbooks, those boring books that can keep students from reading and allowing them to learn what is needed. Those alternative books engage student pilots in a story. While reading the story, students can learn a lot. Because reading the story is a pleasurable experience, what the student pilot reads will tend to stay in their mind long after. (Refer to the FOI regarding the law of effect.)

One such engaging book is *And I Alone Survived*. This is an intriguing tale of a young woman who survived a crash in the high Sierras while a passenger in a Cessna 182. Lauren Elder was the daughter of a Navy pilot who had the curiosity to read all of the unclassified textbooks her father brought home to study while he went through various schools. One such school was the Navy's survival school.

Elder was the only survivor of the three occupants of the Cessna. In her book, she details many of the aspects of the survival training she learned from reading her dad's textbooks. Elder's book is a compelling account of survival. It is a riveting story that once started is difficult to put down until finished. In the process of reading, readers can learn a lot about what techniques, common sense and other aspects of survival it takes to live.

The book details much of what Elder went through on the mountain while providing necessary information about requirements to stay alive until rescue. She writes about the mistakes she made and how she overcame them. The interesting thing about her book is that she is not a pilot or a military member; she was merely a person who was curious enough to read her dad's survival books. There is little question it saved her life. *And I Alone Survived* is a book I recommend as required reading for all pilots. You can never tell when you may very well find

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yourself in a similar survival situation. Knowing what to do and how to do it might keep you alive. Learning basic survival techniques by reading Elder's book is a fascinating way to gain knowledge — without actually having to experience an actual survival situation.

Life experiences are the key to learning. It does not matter if what needs to be learned is positive or negative; vicarious learning can be the key to an all-around solid aviation background. For instance, a pilot can read a good story while learning about takeoff performance, aerodynamics, emergency procedures, and weight and balance from Ernest K. Gann's book *Fate Is the Hunter*.

In his book, Gann describes a takeoff in India in which the runway was aligned directly at the Taj Mahal. Readers can learn about density altitude, what happens to the airplane in an overweight condition, and aerodynamics regarding flap extension at the last second while running off the end of the runway. During his explanation of what happened after takeoff, students can learn how bank angle influences stall speed from a practical sense rather than theoretical. Hearing Gann tell the story through his writing, the lesson tends to stick with students longer.

One aspect of today's students and their preferred method for learning involves video. YouTube is a wonderful example of how students can learn from others who have made critical mistakes. Going through several videos looking for new material, one video, in particular, intrigued me.

This video addressed pilot inexperience and flying different types of airplanes. The private pilot featured in this video learned how to fly in Cirrus aircraft at an airport near his college. He then went home and was eager to give his parents and sister their first flights. After being checked out in a Cessna 172, he later loaded up his family and took off.

Because of the different procedures between the two aircraft, unfortunately, he made the mistake of unwittingly taking off with the flaps set at the maximum extension of 40 degrees. Anyone with a modicum of Cessna 172 experience knows the airplane will not climb with full flaps. Regrettably, this young pilot's mistake destroyed the aircraft and killed everyone aboard. This accident was the result of inexperience combined with unfamiliarity with a new airplane. For a flight instructor, an event like this is not a line item in any syllabus. This is one of those common sense individual learning experiences each student must acquire on their own. There is no silver bullet you can use in the airplane in an attempt to give your students more experience. You cannot increase their knowledge to that level by way of flight instruction or ground school. This is something they must self-study, and to do so, they should have a natural curiosity compelling them to learn.

One aspect of today's students and their preferred method for learning involves video. YouTube is a wonderful example of how students can learn from others who have made critical mistakes.

One thing you should impress on your students is that flying is a very enjoyable, but serious, business. You need to teach them when to be on their guard, and you should also show them when it is time to relax. Your students, as with any other pilot flying out there, need to know what to look out for and when to be cautious. You should also have them trained well enough to handle odd situations that might come their way.

The problem with those odd situations is that sometimes they may involve things your students have never seen before. Possibly, the first time a pilot confronts a hazardous situation might be when they are alone and ignorant of what caused the problem. Another way of looking at this is that you, although you are an outstanding flight instructor, might not be able to share everything you know about flying with your student. The only way some students will be able to meet the unique situational demands thrown at them will depend on all of their prior knowledge, experience and training.

Additionally, while teaching your students, you need to monitor their skills with critical thinking. At times, we as a species can come up short on this crucial skill regarding flying. Pilots must have this essential talent for survival in the air. They must be able to relate a problem of one system to others, assess weather conditions as survivable or life-threatening, or be able to analyze which flight control to move to fix a problem never before presented in their flight training. And they must be capable of doing this on their own — without your assistance. After all, that was your goal as their flight instructor, right? Your goal was to develop students into safe and competent pilots, correct?

Well, part of that is giving them the skills to figure out things on their own to survive situations seemingly too dangerous to survive. In their process of navigating through those stormy waters by themselves, particularly if they made a casually innocent mistake, the voice of experience will take your place in the recesses of their minds. They will survive because you taught them well, and after they get the airplane safe on deck, they will have learned a valuable lesson.

Then, like so many of us who have gone down that path before, they will earn the right to mutter under their breath, "Well, I'll never do that again!"

Joe Clark, a longtime aviation writer and frequent contributor to NAFI Mentor, teaches at Embry-Riddle Aeronautical University and was the 2016 recipient of NAFI's Greg J. Laslo Excellence in Writing Award. He served as a U.S. Navy attack jet pilot and owns a Cessna 170. In addition to his articles and academic essays, Clark is the author of two books, From Cubs to Jets: Essays From a Life in the Air, and PSST! Wanna Know a Secret. His 9,000-plus flight hours include the A-7E Corsair II, the A-4 Skyhawk, and 88 aircraft carrier landings. He lives in St. Augustine, Florida, where he also owns and operates BluewaterPress LLC, a publishing company with a significant menu of aviation titles as well as books of general interest.

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What Are an Instructor's Responsibilities?

When to speak, when to stay silent

By Terry Hocking

Whenever I submit an article sharing my thoughts and experiences, I never really know who will be reading it. It may be one of so many mentors who have elevated and educated yours truly, always to a higher plane. As members of NAFI, the resources we have to draw upon in those areas are innumerable.

On a personal note, I have reached out to our own NAFI board member Tom Turner. Without exception, he has quickly returned sage advice. Or, it may be a fledgling flight instructor, much like me so many years ago, still unsure at times, and not yet truly comfortable in the role of instructor. Once we are seasoned spending time in the right seat, as well as engaged in ground school discussions, negative comments from pilots, and students, do not impact us as they once did when we were younger.

After my initial CFI ride, I fell into the trap of wanting to be liked, and that is a slippery slope for any educator. It has been a journey finding that perfect mixture of not appearing autocratic, while at the same time being firm. Make no mistake, as my Edward Jones adviser once told me: "Terry, you can be very charming when you want to be." This was after closing a direct and pointed conversation regarding my investments. And yes, that was sarcasm on her part! However, charming is not the goal of a flight instructor. Imparting skills that may save a life and doing so as a foundation of good aeronautical decision-making on the pilot's part are much more important lessons to be taught. Let me share a case in point of how I attempted to be fair, firm and friendly with an unarguably biased example. And then, I will also candidly provide an illustration of how I should have said something and didn't.

I was reading posts in an aircraft type specific chatroom. The poster began with a narrative describing how he, as a student pilot, could not concentrate on the physical skills of flying his aircraft during his flight lessons, as he was consumed with anger engendered by his flight instructor. The impetus for his annoyance and irritation was the CFI's maligning and impugning the integrity of his newly acquired flying machine. The thread took on a life of its own, with all involved excoriating the instructor's actions and escalating to the point of suggesting the instructor was envious of the aircraft, and self-righteous! I was incredulous as I vicariously absorbed

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As CFIs, I am certain we have all had customers that we just will not fly with — some because of their attitudes, and some because of their aircraft.

the bias and vitriol directed at a CFI who was not available to defend himself.

I did a quick internet search and found the aircraft in question. I have owned the same model for three decades and can safely say there is not much original on my aircraft. Couple those wallet-vacuuming occurrences as the years have passed with biannual waxing of the aircraft, and I can profess an intimate knowledge of how this model should present itself. The internet image I examined of the wounded student pilot's aircraft immediately showed streaks on the fuselage, as well as a nearly collapsed nose strut. I could not hold my tongue and carefully weighed my words as I explained that maybe the group should withhold judgment until hearing the instructor's side of the story. As CFIs, I am certain we have all had customers that we just will not fly with — some because of their attitudes, and some because of their aircraft.

In my case, when I purchased my bird, it was truly a project airplane. My CFI, as well as others, made numerous pointed remarks that I could have easily found offensive, if I were not open to the concept of the fact I had bought a work in progress. This is what I attempted to convey to the chat group. I reminded them it is wrong on every level to try anyone in the arena of public opinion, without ever hearing the other side of the story. I also reminded them a CFI has the duty to point out and guide a student pilot who has purchased a training aircraft, particularly when the CFI will be training him.

We, as aviation's educating professionals, are always being tested. We are also human and have bad days. We may come across as harsh at times. But for the most part, we are first teachers and evaluators, attempting to promote safety and encourage pilots to keep reaching higher. We do so by promulgating the principles of aeronautical decision-making. ADM paints with a broad brush, and once one enters the world of aircraft ownership, ADM takes on a greater meaning and definition.

As flight instructors, we have an underlying, fundamental duty to lead by example as we guide and mentor those who either are unsure or unknowing. It is very hard to separate flight instruction from general flying knowledge.

This is exceptionally arduous when one has been an aircraft owner the total sum of their adult life. In my case, if I see an issue, I am going to say something. Examples range in scope from something as innocuous as what happened to me the other day. A local pilot, and very nice guy, sounded weak on the microphone. I have never flown with him, so I have no idea how he configures his aircraft. However, I did render an unsolicited view. My suggestion was to get the mic as close to his bottom lip as possible and see if it helped. It did.

And then there are the examples of those who love to resort to a legalistic argument while they challenge you as an instructor. Recently, the FAA updated an advisory circular. AC 90-66B is something all pilots should be familiar with as, according to the AOPA, 97.5 percent of all U.S. airports are non-towered. Recently, at my home airport, there was a discussion with a pilot group regarding traffic patterns. Without exception, the group had not read AC 90-66B. I printed copies and brought them to the next meeting. As the conversation took on an ebb and flow, the arguments ranged from this not being a FAR, and as such there was not a requirement to follow these procedures, to why does the FAA want us to do it this way? The genesis for the discussion was a simple reminder by me that mid-field turnouts at 500 feet AGL are not what the *FAR/AIM* advises. As the discourse unfolded about enforcement not being an issue because this was in the *AIM* section, I reminded them once again of the trump card held by the FAA — FAR 91.13 gives an inspector broad

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A superior pilot uses his superior judgment to avoid situations which require the use of his superior skill.
- Frank Borman

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On November 30, 1911 Pensacola witnessed her own successful aeroplane flight, beginning over 90 years of near-continuous aviation achievements and adventures over the Gulf Coast to this day.

1st Lieutenant James R. Polkinghorne Jr., USAAF, was born in Pensacola, Florida in June 1921 and earned his U.S. Army Air Forces pilot wings as part of the famed Tuskegee Airmen in February 1943.

Naval Aviator, turned professor and aviation historian, Dr. Leo Murphy, has produced two very well-researched books spanning the early decades of aviation in the U.S.

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latitude when it comes to enforcement procedures. It would be hard to defend a mid-field turn at 500 feet AGL if a concerned citizen were to make a call about a low-flying aircraft over their house. And this does not even begin to touch on any level the values of good neighbor policy as well as noise abatement.

So, what do we do when we stick our neck out and get our hands slapped? Do we take the stance of minding our own business? If you decide to go that route, think about this. Some years ago, a group of us met for breakfast at a popular airfield restaurant. It was a crisp spring day in Wisconsin, and jackets were required once we left our flying machines. Most of us were already seated when another member came in and sat down across from me. He was soaked in sweat, and I insensitively asked him if he had pedaled his flying machine in. He said no and left it at that. About a year later, it came to my attention he had lost control of the aircraft in a 5-knot crosswind. The local FSDO felt this was justification for a 709 ride. In retrospect, I learned a lot from the experience. First, do not be as stupid as I was. I was much younger, and tact was not part of my vocabulary. More so than that, read the signals. This was a case where clearly I should have taken this person aside and asked if he would like to go around the patch pro bono. To this day I wish I had. Maybe, just maybe, if we had taken a ride around the patch, I could have encouraged him to seek out an instructor in his area and ameliorate the deficiencies that would later engender the letter from the FAA.

At the end of the day, we must do what we think is right. And while to some our actions may appear supercilious, I firmly believe that like me, most flight instructors have a sincere concern for the welfare of their students. And, without a doubt some of those students may nail the landing every single time and leave you envious of their fine motor skills. They may even brag to their friends they fly better than their instructor. When they do, keep this quote in mind, which solidifies ADM: Apollo 8 Commander and Congressional Space Medal of Honor recipient Frank Borman said: *"A superior pilot uses his superior judgment to avoid situations which require the use of his superior skill."* I first heard this from John and Martha King — and teach it to all I fly with.

Terry Hocking began flying in 1976 and earned his CFI in 2005. He and his wife, Karen, have celebrated their 40th wedding anniversary. "I have a passion for aviation, but my true passion is Karen, my bride. … There has never been a thing she has not supported me on, including always owning an airplane. I have had my Cherokee the longest, dating back to 1989," he said. They live in northern Minnesota.

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MENTOR Look Back

Eds. Note: This article was published in NAFI Mentor in 2014. We hope to feature Mentor—A Look Back, in future issues.

Pilots Who Are Scared to Fly?

By Natalie Bingham Hoover

How to work with students who exhibit symptoms of fear

You have probably heard of arachnophobia (spiders scare me to death), or even claustrophobia (fear of enclosed spaces). But it is unlikely that you have ever heard of pteromerhanophobia, even though, as far as fears go, it's quite common.

Otherwise known as the fear of flying, this phobia affects as many as 40 percent of Americans every day, according to one company's website that sells an herbal supplement to help fearful fliers. And if an herbal supplement is not enough, doctors can prescribe any number of anti-anxiety medications to help one survive flying-induced stress. This particular remedy is a problem, however, for pilots who are fearful of flying, as the FAA declares anti-anxiety drugs to be off limits for those who manipulate the controls of an airplane...and for good reason. As a flight instructor, I have run into several nervous pilots over the years, exhibiting all kinds of symptoms, from white knuckling the controls and minor foot tapping to all-out nausea and trembling whenever the plane hits a patch of bumpy air.

Other signs of fear are not quite as obvious, such as the student who would always lean into me on steep turns so that our shoulders were touching or the one whose breathing would grow slightly accelerated before practicing stalls. Nevertheless, all of these are signs of discomfort and stress in the cockpit. They must be dealt with before a pilot can truly be master of his or her airplane. There are several time-tested techniques for helping people overcome fears and phobias. They range from extreme methods of hypnotherapy to the more mild counsel-

I see it as a sign of strength and courage when a person is transparent enough to admit his or her shortcomings.

ing and psychological therapy. However, many of these methods simply aren't available or practical for flight instructors, particularly when we have students who aren't comfortable discussing or even admitting their fear. So should we turn some people away and suggest a ground-based hobby for those who are afraid to fly? After all, flying isn't for everyone. And fear and panic can make someone downright dangerous in the cockpit of an airplane.

However, before you start to turn people away forever from the thrill of flying, consider this: Fear is a natural part of life, and overcoming those fears is a noble thing indeed. I consider it a privilege not only to be able to teach people to fly, but also to help them stretch their limits and improve their lives in some small way. And it turns out, there are actually several tools flight instructors can use to help students overcome their fear of certain maneuvers and of flying in general.

Depending on your students' comfort level with discussing their feelings, you may or may not be able to actually sit down and talk about their fears associated with flying. For some reason, the aviation community is not one that welcomes a discussion of fears and normal human weaknesses in its pilots. Perhaps it is the strong military influence in aviation that accounts for this phenomenon. After all, a good soldier is supposed to be strong and brave and willingly head toward things that would make other people turn and run. Or maybe, our inability to discuss our fears comes from something as simple as stubborn pride.

Whatever the reason, however, our job as flight instructors is made a little bit tougher when we have to deal with an issue like fear without actually talking about it. In cases like these, I have found that a gradual desensitization approach

works best, in which you carefully and methodically expose your students to the things that scare them in the airplane. For example, if you notice that your student seems nervous when approaching stalls, but is uncomfortable when you attempt to discuss the topic, spend some time on the ground with an in-depth discussion of stall aerodynamics before you practice the maneuver again in the air. Oftentimes a student's ignorance is the cause of his or her fear. Once you explain that a stall is simply a matter of airflow disruption over the wing, and that recovery is as easy as lowering the nose, most students start to relax a little. When you go up to practice the maneuver again, gradually expose your students to their fears by beginning with power-off stalls and working your way up to power-on and turning stalls. This probably isn't the time to let them botch the recovery and spin the airplane. Instead, talk them through the entire maneuver, calling out the proper control inputs when they fail to put in enough right rudder, for instance. As you notice their comfort level begin to grow, you can scale back your input and allow them to make some mistakes. Hopefully, by this point, they will be knowledgeable and confident enough to understand that they can control the airplane in all phases of flight. Eventually, through time and experience, your students' fears will diminish and they can grow into the competent, safe pilots you trained them to be.

If, on the other hand, you have a student who is willing to express his or her fears in the airplane and discuss them with you, then the problem gets much easier to solve. You can start by trying to determine the underlying cause of his or her apprehension. Is the fear based on irrational assumptions? Is this something we can mitigate with a little bit of ground school before we ever get in the plane? Many of my first-timers arrive with the misconception that if the engine quits, our plane will drop like a rock from the sky. I've had others who have watched one too many movies or media-sensationalized accidents and believe that any bit of moderate turbulence will cause our airplane to break apart in flight. Fears based on bad information are easy to solve simply by getting in the books and talking about all of the safeguards built into airplanes and the loads they are capable of withstanding. Sometimes a discussion of statistics is also relevant. Students are always surprised to learn that they are far more likely to be hurt in an automobile accident on their way to the airport than they are when they actually get in the airplane.

Oftentimes a student's ignorance is the cause of his or her fear.

Sometimes, the student may not actually know the cause of his fear; he just knows that the thought of flying makes him very uncomfortable. These cases, of course, take more time to solve but can usually still be handled with a little patience. I once had a student who arrived at our flight school with the sole goal of overcoming her debilitating fear of flying. She never wanted to be a serious aviator, but simply overcome her fear by taking a few lessons. Apparently, she had attempted to fly in small general aviation aircraft before, but was too terrified to even open her eyes in the air. I began by empathizing with her fear and treating it as a valid human emotion, just as normal as joy or sadness. Instead of trying to make light of her feelings, I told her of times that I had been scared in airplanes in the past. In fact, on my first solo cross-country in the dead of winter, I was too scared to reach across the airplane and pull on the heater knob for fear of disrupting the controls. So I just sat there and shivered in the left seat, one hand glued to the control wheel and the other to the throttle for the entire two-hour flight. My student seemed surprised to hear this and was impressed by the fact that I had come so far as to be actually flying for a living and teaching

other people to do so as well. I was the one most surprised, however, when she said, "You mean you have been scared in an airplane? My last instructor would never admit that anything scared him, let alone a Cessna."

For a student to be reluctant to admit her fears is one thing, but for instructors or professional pilots to say that they have never been uncomfortable in an airplane is another thing altogether. They are either lying or they simply haven't been flying long enough to get themselves into a hair-raising situation in an airplane. Sooner or later, we all do it, and I see it as a sign of strength and courage when a person is transparent enough to admit his or her shortcomings.

I expressed this sentiment to my new student, and she seemed to visibly relax, knowing that while we were going to stretch her comfort level, I would never push her beyond her limits in the airplane. For our first several flights together, she had the tendency to pull back with both hands on the control wheel whenever we encountered choppy air, a habit that I let her know scared me a little when she did it. I tried a couple of things with her that really seemed to help. First of all, I changed all of our flights to the early morning so that we could get the smoothest ride possible for our lessons. Once she grew more comfortable with the way summer heating can cause updrafts that lead to a bumpy ride, we started pushing our lessons to later in the day. I also asked her to sit on her right hand and use only her left hand on the control yoke. When she was still gripping the yoke with white-knuckled intensity, I gave her a pencil to thread between the fingers of her left hand. This helped to show her that she really could maintain control of the airplane with the lightest of fingertip pressure.

I am happy to report that my once fearful student is now flying with eyes wide open and one hand on the yoke. The trembling has stopped, and she even appears to be enjoying herself as we roll into steep turns. With a little bit of understanding and the right tools, I have had the privilege of watching my student not only grow as a pilot, but also develop as a person. She has even given me the encouragement to face some of my own fears...although you will still never see me get close to a spider.

Natalie Bingham Hoover, ATP/CFII, MEI, has given more than 3,000 hours of dual instruction. She is also a Beechjet contract pilot and FAA Designated Pilot Examiner in the Mississippi and Tennessee areas. She owns a Cessna 172 named Lola and lives in Germantown, Tennessee. She is the 2014 winner of NAFI's Greg Laslo Excellence in Writing Award.

By Gary Reeves

Is Your Runway Too Short?

What do you want to see if an engine fails on takeoff?

What's your definition of a short runway? Depends on a lot, doesn't it? I think it depends on the answer to four main questions, one of which most pilots don't answer until after they've been hurt in an accident. I think we're all familiar with the first three questions: What type of aircraft you're flying, your takeoff weight, and the density altitude of the departure area. I agree that a 2,000-foot runway probably looks short to an Airbus, but my Cessna 206 seems to enjoy it. During private pilot training, weight and performance charts are taught to everyone. Anyone who is qualified to fly in the mountains (defined as having taken professional mountain training) understands how to use a Koch Chart and determine takeoff and climb rates.

So what's the fourth question? What question would save lives if every pilot asked it before every takeoff? It's simple. How much runway do you need to land safely straight ahead after an engine failure at 200-300 feet AGL? After teaching for over 10 years, mostly in light GA singles, I've noticed a widespread fault in aeronautical decision-making (ADM). It's part of get-there-itis. It's pretty simple and very common. Pilots asking for a shorter runway by length or intersection and thereby cutting the safety margin they need in a low-altitude emergency.

I know that asking for a shorter runway or an intersection takeoff closer to your school or parking is faster. I know it may be easier than taxiing to the full length. I know it may be easier on ATC to keep you on a non-airline runway. What I don't know is what you will say to the FAA and NTSB when, after a low-altitude accident with major damage and injuries, they ask you why you asked for a shorter runway.

> In aviation the quicker way is usually not the safer way.

Stop and imagine a catastrophic engine failure at 200 feet. Picture your family in the plane. What do you want to see in your front window — 3,000 feet of runway remaining in front of you or a bunch of buildings and poles with the safety of the runway behind you? I have never had ATC tell me no when I ask for the longer runway. A controller occasionally says it's a longer taxi or that I will need to wait for a few minutes to take off, but compared to the safety benefit, that is a very low cost.

Anyone reading this article is a safe pilot. How do I know? Because if you weren't interested in safety, you wouldn't be reading this. I hope you're also open to three suggestions that will help keep your loved ones safe when they fly with you:

One, always ask for the full length of the runway and if it agrees with the wind, the longest runway available.

Two, treat every takeoff as a short-field takeoff with holding the brakes and recommended flap settings.

Three, make at least every other landing a short-field landing. It will keep you in practice.

In aviation the quicker way is usually not the safer way. Remember, a longer runway gives you a safety margin, and another five minutes in an airplane is better than five days in the hospital. I'm not saying that I have never taken a shorter runway. I'm just starting to think it's not the safest decision. What do you think? Is there any safety benefit to taking a shorter runway?

Gary Reeves is a 7,500-plus hour ATP, was the 2016 FAA Instructor of the Year in the Western Pacific Region, is a lead representative for the FAA Safety Team, and is a Master CFI. He is best known as a public speaker on aviation safety for the volunteer group www.PilotSafety.org. *He also travels nationally providing Avidyne, Garmin, and IFR training for* www.MasterFlightTraining.com.

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