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Normalization of Deviance in Aviation – The Safety Shortcut

by Michael Goulian

It's cold and miserable, so I am not going to drain the fuel tanks this time; I've never had a problem with this FBO …

I'd like to save a few minutes, so I'm going to run the before-takeoff checklist while I'm taxiing (fast) …

I don't really need to stay on the yellow line – I can beeline for the ramp on my own …

I made it through the last line of heavy precipitation with no trouble, so I'm going direct now …

PHOTO CREDIT: MEGAN VANDE VOORT

Just 50 feet more down the glide path below minimums and I'll be sure to see the runway – I know this airport well …

Have you ever taken a shortcut like this, accepting the related risk?

First, a bit of humor:

What's the difference between God and a Cirrus pilot?

God never claimed he was a Cirrus pilot.

In aviation, safety is paramount. Pilots, maintenance crews and organizations alike operate within a framework of established procedures, regulations and best practices designed to minimize risk. However, over time, even in highly disciplined environments, a subtle and dangerous phenomenon can occur: the normalization of deviance. This term refers to the gradual acceptance of risky behaviors as normal. Pilots are lulled into a sense of safety after repeated success without any immediate negative consequences. The following overview describes causes, progression and consequences, as well as strategies to prevent normalization of deviance in the context of Cirrus flying.

What is the Normalization of Deviance?

The normalization of deviance occurs when individuals or organizations deviate from standard procedures. Because nothing bad happens, they begin to view the deviation as acceptable. In essence, risky behavior becomes normalized through repetition. Over time, small exceptions to the rules slowly escalate. What was once considered unsafe or abnormal becomes the new normal.

In aviation, this behavior may manifest in subtle ways, such as pushing weather minimums, flying with minor but uncorrected mechanical issues or skipping steps in preflight inspections. Each time a deviation does not result in an accident, it reinforces the false belief that the behavior is safe, gradually eroding safety culture.

External Pressures and the Urge to Take Shortcuts

Pilots may begin deviating from procedures due to perceived or real external pressures. These pressures can stem from scheduling problems, demands from owners or principals, passenger expectations or budgetary constraints. While these pressures may feel genuine, they are often only perceived – self-imposed by the pilot's own desire to meet expectations or avoid disappointing others.

Figure 1: *A forgotten Angle of Attack cover led to a landing accident.*

In Figure 1, above, a Vision Jet pilot forgot to remove the Angle of Attack cover – a preflight item – which resulted in a landing accident on their emergency return to the airport.

Many in the Cirrus community are in the bad habit of raising the flaps after touchdown while still on the runway to put "weight on the wheels" for better braking. This is something SR2X pilots can get away with, but it can be problematic when those pilots transition to the Vision Jet or other retractable gear aircraft. More than a handful of Vision Jet pilots wanted to retract flaps on the runway to shorten their ground roll but instead retracted the landing gear prior to the weight on wheels (WOW) switches signaled ground operation. How many times had the pilot of the Vision Jet in Figure 2, below, done the same thing without incident?

Figure 2: *Bad habits in SRs lead to bigger problems in aircraft with retractable gear.*

> ***"Each time a deviation does not result in an accident, it reinforces the false belief that the behavior is safe, gradually eroding safety culture."***

Perceived pressure can lead to shortcuts in safety practices. The problem is compounded by complacency; the more a deviant behavior is repeated without incident, the more comfortable the pilot becomes with it.

Some deviations even provide a thrill or adrenaline rush – such as scud running or attempting approaches to absolute minimums – making them more tempting to repeat.

The recent collision of an American Airlines jet and a helicopter over the Potomac demonstrated normalization of deviance. The accident review showed that from 2011 to 2024, there was one TCAS Resolution Advisory (RA) per month due to the unsafe proximity of an aircraft on approach and a helicopter.

- One-half of the RAs occurred due to the helicopter being above the route altitude restriction.
- Two-thirds of the events happened at night.

Figure 3: *The recent Potomac River crash is an unfortunate example of normalization of deviance.*

Complacency and Overconfidence

As pilots gain experience, they naturally develop confidence in their skills and in the aircraft they operate. While confidence is essential for competent flying, overconfidence can be dangerous. Many pilots progress well from being cautious to conservative. They then move to the comfortable/confident zone. Unfortunately, some pilots then become complacent or cocky – the "Four C's."

The sweet spot is found between the boundary of being conservative and comfortable/confident.

This progression reflects how experience can lead to pushing boundaries. A pilot who has safely flown into marginal conditions before may feel justified in doing so again, assuming that skill and familiarity will always prevail. Over time, the bar for what is considered "safe" shifts higher, often without conscious awareness.

Figure 4: *Moving to the comfortable/confident zone, can lead some pilots to become complacent and cocky.*

The Role of Cognitive Biases

Two significant cognitive biases contribute to the normalization of deviance: optimism bias and confirmation bias.

Optimism bias leads pilots to believe that accidents happen to others, not to them. This belief fosters risky decisions, as pilots underestimate the likelihood of negative outcomes.

Confirmation bias reinforces the idea that if a deviation has been performed safely before, it will continue to be safe. This bias overlooks the role of chance and changing conditions.

These biases create a dangerous feedback loop where past success encourages further deviations, making unsafe practices seem justified.

The Danger of Insidious Change

Normalization of deviance is dangerous precisely because it is gradual and insidious. It is rarely a single, dramatic breach of safety procedures that causes the problem. Instead, small changes accumulate over time. One minor deviation becomes routine and before long, the deviation is embedded into standard operating practice.

This slow erosion of standards can be invisible to those inside the system. From the outside, however, the deviations may be glaringly obvious. Unfortunately, it often takes an incident or accident for those within the system to recognize the risks they have normalized.

Historical Case Studies

In the space program, two high-profile tragedies illustrate the normalization of deviance: the Space Shuttle Challenger disaster in 1986 and the Space Shuttle Columbia disaster in 2003. In both cases, technical anomalies and safety concerns were observed during earlier missions but were accepted as normal because previous flights had been completed successfully despite them. This acceptance set the stage for catastrophic failure.

Figure 5: *An O-ring erosion was dismissed as an acceptable risk and due to external pressures the Challenger mission continued and ended in a catastrophic explosion.*

In the Challenger's case, the O-ring erosion had been noted but was dismissed as an acceptable risk. The flight had been delayed twice. The external pressures grew to continue the mission despite the O-ring problems. In its final flight, the Challenger made it through liftoff and was flying. Morton Thiokol thought they had dodged a bullet. Until this point, as a product of combustion, an oxide seal had taken the place of the damaged O-ring. Thirty-seven seconds into launch, the Challenger experienced a large wind shear which disrupted its flight path. The wind shear caused the Challenger to "flex" which caused the oxide seal to break, thus allowing a 5,000-degree plume of exhaust to exit the solid rocket booster and burn through the right aft strut. It then struck the external tank, causing an explosion.

With Columbia, foam strikes during launch had occurred before without causing the loss of the vehicle, leading teams to discount this as a threat. In its final flight, 82 seconds into the launch, at 66,000 feet and a speed of Mach 2.4, a suitcase-sized piece of foam became dislodged from the left bipod ramp and impacted the left-wing leading edge of the Columbia.

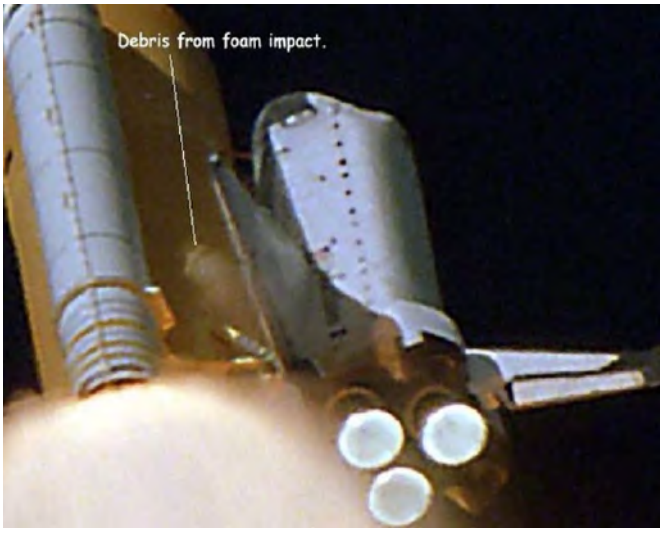

Fig 6: *Foam had struck during launch before without destructible loss, leading teams to discount it as a threat. With the Columbia, foam impacted the left-wing leading edge.*

In both cases, the normalization of deviance allowed small but significant problems to escalate into fatal accidents.

While these examples come from spaceflight, the principles apply directly to aviation. The same acceptance of risk, reinforced by prior success, can lead to deadly consequences in general aviation, commercial operations or military flying.

Recognition and Prevention

The key to preventing normalization of deviance lies in early recognition and intervention. Pilots and their organizations must be vigilant in monitoring their own behavior and decision-making. This includes:

1. Strict adherence to standard operating procedures (SOPs) – even when tempted to deviate for convenience or perceived necessity. How closely do you conform to Cirrus' flight operations manual and the documented standard procedures when you fly?
2. Encouraging a safety culture – fostering an environment where deviations are questioned and addressed rather than ignored. Do you hold yourself accountable after an error in judgment or an important in-flight mistake? Are you using post-flight tools to debrief and evaluate your performance on every flight?
3. Seeking outside perspectives – third-party audits, instructor flights and peer reviews can reveal deviations that have become invisible to those inside the system. Are you adhering to Cirrus' recommended six-month interval for recurrent training and evaluation by a CSIP or TCI? Have you attended a COPA University event?
4. Continuous training and scenario-based exercises – reinforcing decision-making skills and highlighting the dangers of complacency. When was the last time you reviewed the aircraft's operating limitations and drilled on the emergency procedures section of your POH/AFM?

By recognizing the signs early – before an incident occurs – you can reestablish safe practices and avoid allowing deviant behavior to become normalized in your own flying.

Recognize the Warning Signs

Normalization of deviance is one of the most insidious threats to aviation safety because it operates quietly, without immediate consequences, until the conditions align for disaster. It thrives on human tendencies toward complacency, overconfidence and cognitive bias, and is fueled by both real and perceived external pressures. History shows that even highly trained professionals in advanced technical fields are susceptible to its effects.

The antidote is a disciplined commitment to standard procedures, an openness to outside feedback and a constant awareness of the gradual erosion of safety margins. By understanding how the normalization of deviance occurs and recognizing its warning signs, you can take proactive steps to prevent it – ensuring that safety remains the unwavering cornerstone of every flight you take. ⊕