



Normalization of Deviance

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If people DEVIATE from rules what does it signify? They are UNSAFE

Majority of Human Errors occur due to the attitude of individuals practicing deviation from established rules/procedures causing incidents and accidents. Deviations will become norms if allowed to continue. Therefore practice the principle of strict adherence to rules and set standards.

First Reported Deviation

Icarus was the first pilot to deviate from design limitations. Most pilots have probably heard the story from Greek mythology about Icarus, the ancient aviator who flew too close to the sun and came crashing down into the sea.

Since it was Daedalus, his father, who designed and constructed those wings of bird feathers tied with string and wax, it can be said that not only was he the original aeronautical engineer, but he included a maximum cruise altitude in his design specifications. Fly too high, he warned his son, and the wax used to fasten the feathers would melt.

Is Deviation permissible?

Deviations in aviation are to be expected; in fact, regulations make allowances for them. Since aircraft designers and regulatory authorities can't think of every possible circumstance, CAR gives a Pilot In Command the authority to deviate from to the extent required if an inflight emergency requires immediate action.

What about other routine Deviations ?

Pilots may find themselves having to alter or skip a standard operating procedure (SOP) for safety reasons. Sometimes they may make decisions that, at the time, seem prudent. But on reflection, many of these decisions may have just been laziness or an error in judgment.

Normalization of Deviance

As professionals, we train to minimize deviations and to recover from those that do occur. If those deviations become frequent, however, there is a tendency to start accepting them as the new norm, to lower our standards and blur the distinction between what is acceptable and what is not.

The phrase “normalization of

D	E	V	I	A	T	E	Total
4	5	22	9	1	20	5	66
U	N	S	A	F	E		Total
21	14	19	1	6	5		66

deviance” was coined by sociology professor Diane Vaughn in her 1996 book, The Challenger Launch Decision: Risky Technology, Culture and Deviance at NASA, where she examines the tragedy of the 1986 launch of space shuttle Challenger. Challenger’s Final Flight

The Final Flight of N121JM

Experts who have accumulated an enviable amount of experience and a strong sense of confidence are at risk of normalizing deviance unless they have sufficient oversight and a strong peer group. The crash of Gulfstream IV N121JM makes this case.

On May 31, 2014, the crew of the GIV started their engines without running the engine start checklist and neglected one of the steps that would have had them disengage the flight control gust lock. They then skipped the after starting engines checklist, which would have required the flight controls to be checked; had they done this, they would have realized the flight controls were locked.

They also skipped the taxi and line up checklists, as well as the requirement to check the elevator’s freedom of movement at 60 kt. They were unable to set takeoff thrust, realized this, but continued the takeoff anyway. The rest, unfortunately, is history

As details gradually surfaced from the NTSB accident investigation, we in the aviation world were stunned. For example, the recorder revealed that they had skipped the full flight control check on 98% of their previous 175 takeoffs.

Solution to Correct Normalization of Deviance

Any pilot who is tempted to deviate from an SOP should first think about measures to formally change the SOP:

- carefully analyze the existing SOP, try to understand why the SOP is constructed as it is, and come up with an improved alternative solution.
- then, gather support from peers, and advocate the change to those who have the power to change things.

Flight Operations department leaders should work with crews to ensure that :

- each SOP is pertinent, easily understood, easily followed and consistent with other SOPs in the department and fleet.



- if adjustments are needed, select a well-respected team member to spearhead the effort, and Institute a test phase and obtain manufacturer comments, if possible.

5 Techniques for pilots to come out of normalization of deviance

We see repeatedly in aviation, we can become so experienced at our profession that complacency displaces competency

1. Follow Standard Operating Procedures (SOPs)

- Pilots often find themselves having to adjust, reorder or even skip some SOPs because they don't exactly fit

the situation at hand, they would take more time than a widely accepted shortcut, or we think they have a better method. Operating ad hoc, in the heat of the moment, we risk not carefully considering all possible factors.

- If we skip or reorder steps, we risk forgetting something important or failing to consider any sequential priorities
- Further, once they've violated the first SOP, it becomes easier to violate the second, and the third. Before too long the culture of having SOPs will erode and when that happens, all SOPs become optional.

And in a small flight department, there is a low likelihood of "being caught" or challenged. Under these circumstances what is the solution?

2. Train to a standard

Your training is only as good as your instructor and if you are taught to cut corners and to ignore all that has been learned over the years, you can be trained to deviate. It can also occur when a professional training organization has misguided ideas of what should or should not be taught, or does not exercise proper oversight of its instructors.

Seasoned simulator instructor pilots can give into the normalization of



deviance, too, and their preferred methods are not necessarily the right methods. Instructors and students alike should always be willing to return to the source documents. If an instructor's technique violates a manufacturer's procedure, the instructor is duty-bound to advocate the change with the people who built the airplane, not with those who are flying it.

Administrators should seek honest feedback about each course and use it for reviewing the course material

3. Improve and broaden your peer group

No professional pilot sets out to bend the rules on the margins or flagrantly disobey all SOPs. Good pilots can be corrupted by poor peer groups. If everyone else has already normalized deviant behavior, it will seem an impossible task to hold true to SOPs without upsetting the status quo.

Even a good peer group can become so comfortable that it, too, will begin to accept deviance as normal. If just one pilot adheres to all SOPs and best practices, the others will take notice. That alone may be enough to fix what is broken.

It may also be possible to demonstrate the efficacy of an SOP against a deviation and attempt to convince your peers to participate. If a senior member of the flight department insists on a non-standard procedure, ask for the reasons behind that "to better understand how

to accomplish the procedure."

4. Make safety conspicuous

One of the profound lessons of the Challenger tragedy is that decision makers believed they were making the right, reasoned ones each step of the way. But in hindsight they would have to agree that many of those decisions were wrong.

Pilots in the "expert" class are in remarkably similar circumstances. They are quite often under extreme pressure to minimize costs while expanding mission capabilities. Department managers are often asked to spend less and less on maintenance, training and operating costs. Skipping maintenance checks, training events and checklist steps are at first approached carefully with considerable thought and consideration.

A poorly kept secret in many aviation circles is that the "safety first" motto is often quoted, but rarely enforced. Managerial actions, such as frequent duty day waivers and calls to "hurry up" can undo any spoken assurances. If you are a chief pilot and this alarms you, try to make a conspicuous show of it the next time safety is indeed first.

5. Learn humility

When we assign the title of "expert" to a pilot, we recognize that person for a technical skill gained from training and experience. We also imply that the expert will be more objective than a non-expert and will be better armed

against the normalization of deviance. Unfortunately, the opposite can be true.

An expert can believe his or her knowledge and experience gives license to deviate. With experience comes confidence - in some cases to the extreme. Over-confidence and arrogance can be cojoined.

The antonym for arrogance is humility

A humble pilot realizes that even the best aviators make mistakes and that one's guard can never be lowered, even when the title of "expert" has been rightfully earned. The best way to keep humble is to research the all too many mishaps of very good pilots who have given in to the normalization of deviance. They're readily available.

Deviation is NOT Normal

As with many technical pursuits, deviations from the norm are a fact of life in aviation. Our SOPs cannot cover every situation. We make mistakes. If those procedures are found lacking, it is up to us to change them. We must also design safeguards and redundancies to ensure we can effectively recover from any of those inevitable mistakes.

Normalization of Deviation is a Major Risk to Flight Safety.

Take Home Message: Avoid Normalization of Deviation & Strictly Follow SOP to Enhance Flight Safety. 🛑

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14	15	18	13	1	12	9	26	1	20	9	15	14	+	O	F	+	4	5	22	9	1	20	9	15	14	287	
M	A	J	O	R		R	I	S	K		T	O		F	L	I	G	H	T		S	A	F	E	T	Y	Total
13	1	10	15	18	+	18	9	19	11	+	20	15	+	6	12	9	7	8	20	+	19	1	6	5	20	25	287