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Proficiency on Every Flight

3 messages

David Yachabach <yachabach@gmail.com> Sat, Jan 2, 2021 at 2:09 PM
To: "thomas.haines@aopa.org" <thomas.haines@aopa.org>

Dear Mr. Haines,

Thank you for your article, Proficiency on Every Flight. I would like your thoughts on the difference between proficiency and performance. More to the point, does proficiency at the procedures involved in an ILS approach really translate to safer, more resilient performance?

I am considering exploring this contrast as my final project for my Human Factors Master's degree and I want to consider your thoughtful perspective. Are we misrepresenting the tool and the task? For example, in your article you describe keeping the "…flight path marker locked…". I argue that the flight path marker is a tool for flying a more precise approach. The task remains what it always was, fly a path to the runway that avoids obstacles. The mindset of flying the flight path marker will certainly result in more precise course and path control; where is the pilot's mindset when the unexpected occurs? With a mindset carefully held in the fundamentals of aircraft control (ie. Pitch and power), the flight path marker becomes a tool for verification and fine adjustment of pitch, power, and course – the tool, not the task. The go-around (at minimums or with an unexpected equipment failure) remains a pitch and power solution and there is no transition (in the pilots mindset) from "approach mode" to "go-around mode".

I would be interested in your comments on this point of view. I am struggling to develop a testable hypothesis. But after many years of observation as a check airman at a major airline, I've watched the proficiency of professional pilots decline dramatically when the automation performs unexpectedly. I would like to study this idea and would greatly value your perspective.

David Yachabach
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Retired 737 Check Airman

Haines, Thomas <Thomas.Haines@aopa.org> Mon, Jan 4, 2021 at 12:13 PM
To: David Yachabach <yachabach@gmail.com>

Hello, Mr. Yachabach,

Thank you for the thoughtful questions!

I agree that the flight path marker is a tool to help the pilot understand the aircraft's trajectory, which is managed by pitch and power.

Proficiency, I believe, is the ability to complete a task well and consistently. Performance, in my mind, is a broader subject, taking into account more than the task at hand. In other words, I may be proficient in flying an instrument procedure—keeping the localizer/glideslope indicator centered. However, my performance is measured by a successful landing or go around as required by the changing circumstances. For my performance to be good I have to have good aeronautical decision-making about when to continue or not to continue the approach or whether to start the approach in the first place. Did I remember to put the gear and flaps down while also keeping the indicators centered—something

more than the one task that I'm proficient at? Did I remember to report to the tower when I crossed a particular waypoint as the controller requested?

If I do all of those things, my performance is good.

I certainly agree that when there are unexpected failures or actions by the automation, performance often suffers.

It's probably too simplistic, but what about a study that involves two groups of pilots used to flying with a lot of automation. One group is presented with a series of unexpected automation behaviors or failures and their performance is measured in the sim. Meanwhile, the other group is given the opportunity to brush up on pitch and power flying—stick and rudder, if you will; a bit more raw data flying. And then those pilots are presented with the same automation issues and see how they perform compared to the first group.

The hypothesis being that plots who have had recent experience flying "raw data" perform better when encountering the unexpected.

Thanks again for the thought-provoking questions and good luck with your final project. Let me know how it goes!

TOM HAINES

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David Yachabach <yachabach@gmail.com> Thu, Jan 7, 2021 at 7:26 AM
To: "Haines, Thomas" <Thomas.Haines@aopa.org>

Thank you, Mr. Haines, for that excellent response. Your experiment suggestion is not too simplistic at all. You are correct. I can measure proficiency with procedure compliance. The more difficult question is how to measure performance.

Take stabilized approach criteria for example. It's a well-researched phenomenon that, in the airline world, over 95% of unstable approaches are continued to a normal landing. In the vast majority of cases this is not a simple issue of selective non-compliance. It is the decision that was made after an assessment of the risks of continuing. If I measure performance by compliance rates, I might be missing important information about the mental model used to make the decision to continue.

If my mental model is to keep the flight director bars centered, I may miss a cue that would change my risk assessment. That might happen once every 1,000 hours but it's a latent threat just waiting for it's unexpected opportunity. Your suggestion would offer exploration of that idea - now I just have to come up with a way to measure performance.

Thank you again for engaging! I'm interested in your thoughts.

Dave

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