

The Right Stuff

Redefining How to Train Pilots

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CONCEPTS AND DEFINITIONS

Deliberate Practice

A structured, feedback-driven training method designed to improve performance. It removes external rewards or consequences and focuses on overcoming weaknesses through specific, measurable exercises.

Characteristics of Deliberate Practice

- No external rewards or consequences
- Provides immediate, objective feedback on performance
- Guided by an instructor or teacher experienced in the field
- Focuses on overcoming specific weaknesses through targeted tasks
- Effortful and Inherently Unenjoyable

The Five Components of Pilot Skill

1. **Knowledge** – The required information necessary to perform a task, including regulations, procedures, aircraft systems, flight principles, and operational considerations..
2. **Decision-Making** – The ability to assess a situation, evaluate options, anticipate consequences, and choose the best course of action in real time.
3. **Perception** – The *receiving* of information through sensory inputs—primarily visual scanning, but also auditory and kinesthetic cues.
4. **Physicality** – The *active doing* of things—the execution of motor skills required for precise aircraft control, including stick-and-rudder coordination, throttle management, and muscle memory for control inputs.
5. **Communication** – Primarily the ability to send and receive accurate radio communications, ensuring clear coordination with air traffic control, other aircraft, and crew members. Other methods include hand signals, lights, and aircraft maneuvering.

Perception-Physicality Connection

Perception and physicality form a continuous loop—what a pilot does changes what they see, and what a pilot sees changes what they do. Scanning is an event-driven, dynamic, active seeking process, not a rigidly structured pattern.

Training Loops

A method for skill acquisition structured into three stages:

- **Follow-Along** – The pilot watches/listens to a prerecorded task and keeps pace to develop anticipation.
- **Drill** – Isolates specific skill components for structured, repetitive practice with immediate feedback.
- **Do** – Full execution in the aircraft to validate previously refined skills and identify remaining weaknesses.

The Four-Step Process for Skill Correction

1. **What Went Wrong?**
 - Identify the error or deficiency against a standard of *perfect* execution.
2. **Why Did It Go Wrong?**
 - Diagnose the root cause using the Five Components of Skill
3. **How Do We Fix It?**
 - Use Follow-Along and/or Drill to correct the issue before the next flight.
4. **Actually Do What You Came Up With in Step 3**
 - Fixing mistakes requires action. Recognizing an issue doesn't correct it.

Emergency Procedure (EP) Recordings

Audio-based training that reinforces procedural fluency through:

- **Challenge & Response** – Pilot hears a prompt, responds within a set time, then correct response is played, providing immediate feedback.
- **Guided Follow-Along** – Step-by-step execution at real-time speed to develop automaticity.

Communication Training

- **Comm Sheets** – Comprehensive list of customized communications script for structured verbal practice.
- **Audio-Based Radio Calls** – Listening to pre-recorded real transmissions to develop fluency.

Video Study

There are three distinct applications of video for pilot training:

- **Instructional Videos** – Edited, narrated, explanations of key material.
- **Follow-Along Videos** – Cockpit footage for practicing scan, communications, and decision-making.
- **Debrief Analysis (“Truth Tapes”)** – Postflight review and analysis of video to identify mistakes.