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Pilot Professionalism and Attitude Management: A New CRM Generation?

Jonathan Velázquez Ph.D.

Inter American University of Puerto Rico - Bayamon, jvelazquez@bayamon.inter.edu

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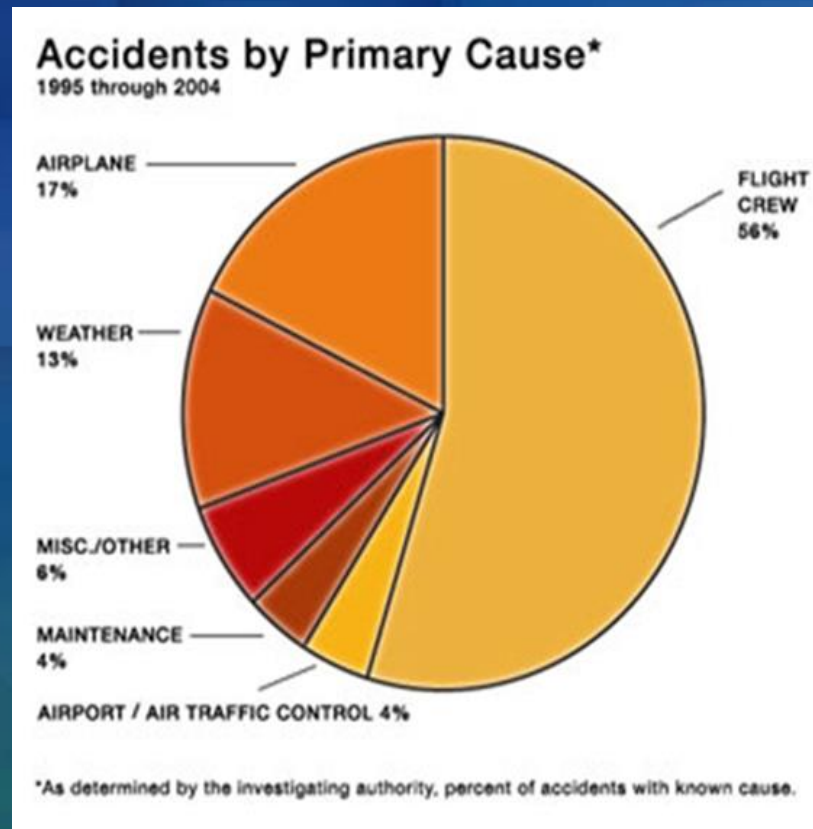
Jonathan Velázquez, Ph.D., ATP, CFI
Inter American University of Puerto Rico

Overview

- CRM: A Brief History
 - Past Generations
 - Recent Research
- Behavioral Traps, Cognitive Biases, and other hazardous conduct
- Pilot Professionalism NPRM – A Summary
- Proposed Solutions: Attitude Management
 - Cognitive Debiasing
 - Cognitive Adaptation Training

Introduction

- Flight crew is the number one contributing factor in U.S. aviation accidents



CRM: A Brief History

- 1st Generation

- **Cockpit Resource Management**, focused on the psychological and behavioral aspects of team performance, specifically, the over-authoritarian leadership styles of captains, and the lack of assertiveness in many first officers.
- Courses were characterized by seminar-styled lectures on managerial and psychological aspects of pilot interactions.



CRM: A Brief History



- 2nd Generation

- Emphasized team work
- Team building, briefing strategies, etc.

- 3rd Generation

- Training extended to other groups, such as flight attendants, dispatchers, and maintenance personnel

CRM: A Brief History



● 4th Generation

- Advanced Qualifications Program
- Special training for those charged with certification of crews and formal evaluation of crews in full mission simulation is required (**Line Operational Evaluation or LOE**)
- Specific behaviors and CRM training concepts were processed into checklists.

● 5th Generation

- Threat and Error Management (TEM)
- Emphasis on organizational safety culture

Recent Research

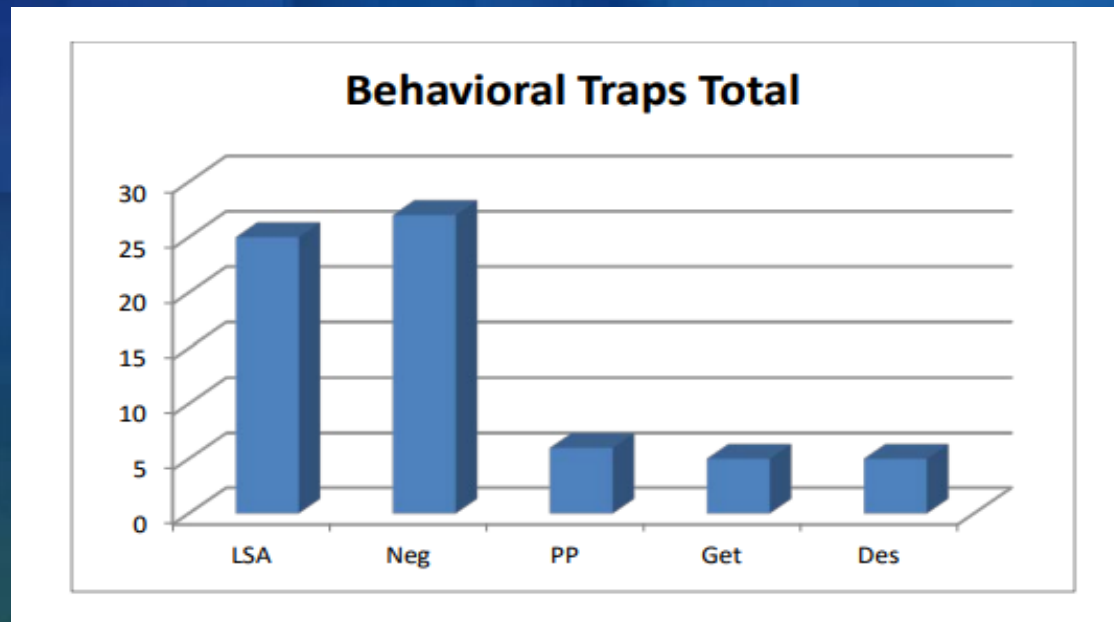
- Dismukes et al. (2007): Re-analyzed 19 accidents from 1991-2000
- Shappell et al. (2007). Applied HFACS to commercial aviation accidents
- Mosier et al. (2012). Aviation Decision Making Issues and Outcomes: Evidence from ASRS and NTSB Reports
- Velazquez (2016). Behavioral Traps in Flight Crew-Related 14 CFR Part 121 Airline Accidents

Behavioral Traps

- Peer Pressure
- Get-There-Itis
- Loss of Situational Awareness
- Unauthorized Descent Below an IFR Altitude
- Neglect of Flight Planning, Preflight Inspections, and Checklists

Results – Descriptive Statistics

- Every SME found a minimum of one behavioral trap and a maximum of four throughout the analysis.
- The average number of behavioral traps was two.



Neglect of Flight Planning, Preflight Inspections, and Checklists

- Disregard for SOPs
- Failure to perform walk arounds or preflight inspections.
- Nonadherence to sterile cockpit rule
- Inadequate use of checklists or resources

Loss of Situational Awareness

- Poor workload management and consistently getting behind the airplane
- Constant state of surprise of what happens next
- Inability to recognize deteriorating circumstances
- Uncertainty regarding the airplanes geographical position

Other surprising results

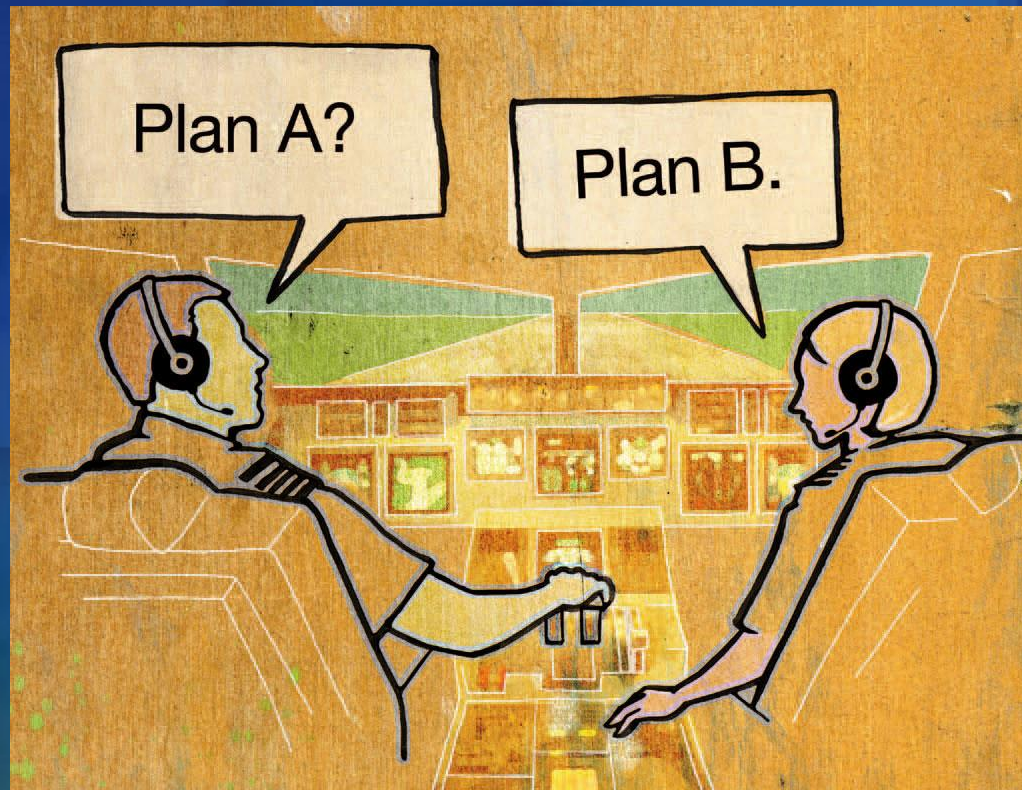
- Behavioral Traps occurred mostly during approach and landing
- Neglect... occurred twice as much at night.
- Evidence of habitual noncompliance and perhaps normalization of deviance
- How effective is CRM? Is it time for a new CRM generation with emphasis in attitude management?

NPRM in a nutshell:

- Provide new-hire pilots with an opportunity to observe flight operations (operations familiarization) to become familiar with procedures before serving as a flight crew member in operations.
- Revise the upgrade curriculum;
- provide leadership and command and mentoring training for all pilots in command (PICs);
- and establish Pilot Professional Development Committees (PPDC).

The NPRM

- Does it really change CRM training?



Proposed Solution: Attitude Management Training through Cognitive Debiasing

- Modifying the decision maker or generating alternatives
- Dealing with optimism

Proposed Solution: Attitude Management through Cognitive Adaptation Training

- Mental Mode Management Training (MMMT)
- Mindfulness Training (MT)

Conclusions

- Behavioral traps negatively affect aeronautical decision making and increase the likelihood of an aviation accident due to pilot error or unsafe behaviors.
- Recent Pilot Professionalism NPRM does little to modify CRM training and address attitude management.
- Attitude Management can be inserted to CRM training and or LOFT sessions to address professionalism issues:
 - Cognitive debiasing (Generating alternatives and dealing with optimism)
 - Cognitive adaptation (MMMT and Mindfulness)

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Questions

jvelazquez@bayamon.inter.edu