Current State of Pilot Training for Emergency/Abnormal Situations – a preliminary report

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Our Mission

1. Understand in detail how the industry today trains air carrier pilots for emergency and abnormal situations.
What We’re Doing

1. On-Site Visits to U.S. Part 121 Air Carriers
   - Large & Small
   - Passenger & Cargo
   - AQP & ‘Traditional’ (Part 121 subparts E/F/N/O, Appendix H)

2. 2 fleet types at each carrier (if available)
   - Glass & Round-Dial cockpits
Current Project Status

1. Initial stages of data collection
2. Several more visits scheduled, more still in planning
3. No analysis yet – still raising questions
Today’s Presentation: 
*a preliminary report*

1 Our Process
1 Common Issues
1 Panel Discussion
Our Process

1. 5 day visit @ each airline by 2 researchers
2. Data Collection, via:
   - Interviews
   - Observations
   - Document Reviews
3. All data are *de-identified*
Our Process: Interviews

1. Who we interview:
   - Training Department Managers
   - Instructors & Check Airmen
   - Line Pilots

1. Method
   - Semi-structured interviews
   - 2 Interviewers
   - Instruments:
     1. Question Guides
     1. Notepad
Our Process: Observations

1 What we observe:
   - Simulator sessions (including CPT/FTD) \((primary)\)
     1 Initial, transition, upgrade, recurrent
   - Classroom instruction \((secondary)\)
     1 CRM

1 Method
   - “Fly-on-the-wall”
   - 1 observer in simulator
   - Instruments:
     1 Data collection worksheets
     1 Notepad
Our Process: Document Reviews

1. Which documents:
   - Aircraft Manuals
   - Ops Manual
   - QRH or Emergency/Abnormal Checklists
   - Training syllabi
   - Instructor guidance material

2. What we’re looking for:
   - Training philosophies
   - Training methods
   - Course Footprints
Common Issues
(raised by nearly everyone we’ve seen)

1. Fixed Footprint Tradeoffs
2. “Train to Proficiency”
3. LOFT
4. Long-Term Single-Type Pilots
5. Measuring the Effectiveness of Training
6. Lack of Standards in Certain Areas
7. Systems Knowledge – How Much is Enough?
8. Rushing, Stress, and Workload Management
Common Issues

Fixed Footprint Tradeoffs

1. Footprints vary across airlines, but...
2. For each given airline, footprints remain essentially fixed, so...
3. With limited time, what should be trained?
   - Emerg./abnormal vs. normal procedures
   - Which specific emerg./abnormal procedures?
   - Risk Evaluation
Common Issues
“Train to Proficiency”

1. What does this mean?
   - Original implication: No formal **ceiling** on the amount of training.
     - This has **not** been raised as a concern so far.
   - Current implication: No formal **floor** on the amount of training.
     - This **has** been raised as a concern.
   - If student does something once, and does it right, is he/she proficient? (*Trained* vs. *Exposed*)
Common Issues

LOFT

1. Near universal support – everybody likes it, or wants it, or wants more of it.
2. “Decision Making” training desired – but does current LOFT methodology provide this?
Common Issues

Long-Term Single-Type Pilots

1. This can arise at both single-fleet carriers, and at multi-fleet carriers where some pilots tend to “homestead” on one type

2. Concern raised with long term skill retention, since such pilots:
   - Never repeat initial sim training
   - Never repeat systems ground school

3. Reported trends in pilot performance on recurrent
Common Issues
Measuring Effectiveness

1. How do you know how well your training program is working?
   - Real world, operational data?
     1. E.g., FOQA/ASAP data, irregularity reports, accident/incident reports, etc.
     1. “We aren’t killing people, so we must be doing well.”
   - Checkride data (Grading)?
     1. E.g., Pass rates, first look grades, etc.
     1. “Our pass rates (grades) are excellent; that shows we’re doing well.”
Common Issues

Measuring Effectiveness – AQP vs. Part 121

1. Traditional 121 philosophy: FAA requirement-driven
2. AQP designed to let data indicate problems and demonstrate corrective response
3. AQP carriers apparently have adopted data-driven philosophy
4. Questions about effectiveness in practice
Common Issues
Lack of Standards

1. There don’t seem to be standards, either within individual airlines, or across airlines, for:
   - Assignment of duties during EAS
     1. PF (Capt, FO, or current PF)
     1. Radios (PF, PM)
     1. Memory items (PF, “whoever gets to it first”, etc.)
     1. Guarding/Confirming critical items
   - Use of automation during EAS
Common Issues

Systems Knowledge

1. Level of systems knowledge impacts pilot’s ability to analyze the situation.
   - Old view: “You should be able to build the airplane.”
   - New view: “If you can’t see it, touch it, or affect it, you don’t need to know about it.”

   - Analysis may be lacking.
   - Problems with “unannunciated” and misleading situations.
   - Greater burden on QRH authors -- QRH has to be a ‘cookbook’ -- just read it, and it should fix the problem.
Common Issues
Rushing, Stress, and Workload Management

1. Problems seen in training and on the line may not always involve technical or procedural knowledge/abilities, but rather, human reactions to stress and overload.
2. Simulator emergencies vs. real emergencies.
3. Training for workload and stress management.
What do you think?

1. Study is still in its initial stages...
2. We welcome your input!
Panel Discussion

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