The Super Hero Helicopter Pilot
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L3 Link Simulation & Training

USHST Industry Outreach Chair
Training Work Group Chair
The Demand

- Helicopter production forecasts. 4,300 to 4,800 global civilian use helicopter deliveries over next 5 years (Honeywell 2016).
- Asian aviation markets growing rapidly. Airfields cannot cope or do not exist and heliports offer good alternative. (Price Waterhouse Cooper 2016)
- Military retention; The military are training less.
- Realize that hours and experience do not always determine competency.
What is experience?

• “The knowledge or skill acquired by a period of practical experience of something, especially that gained in a particular profession” or “the process of doing and seeing things and having things happen to you” (Oxford Dictionary)

• Experience – Is that marvelous thing that enables you to recognize a mistake when you make it again (Jones n.d.)
“Never let a man tell you that he has 20 years of experience when he really has one year of experience repeated 20 times” (John Bent).
“Good judgement comes from experience, and experience comes from bad judgement” (Jones n.d.)
What is Competency?

“The combination of Knowledge, Skills and Attitudes (KSA’s) required to perform a task to a prescribed standard under certain conditions”

Competency definition (ICAO)
Growing new licensed pilots is not the problem! > 200 schools worldwide……

....but most use time and maneuver based training.
Safety

• Helicopter accident stats remain high. IHST Trends. USHST stats did not meet 80% 10 year reduction.
• To decrease accident rate we need professional pilots trained from ab initio.
• Human Factors and ADM major part of the curriculum.
IHST Standard Problem Statements (SPS) and Intervention Recommendations (IR)

• ECAST (FW) SPS – 70% HF and 52% SMS/Culture
• IR – Flight Ops/SMS/Culture/Training/Instructional/Regulatory/Standards/Guidelines
• IHST Compendium Report – 84% HF and 43% SMS/Culture
• IHST IR – Training/Instructional/Data/Info/SMS.
CAST Response – Ab Initio

- Recommendations from 1998-2008 reduction goal.
- MPL – Multi Crew Pilot License (CRM) (Competency Based)
- HF Training insufficient (TEM)
- Soft skills or “Airmanship” skills training
Part 121 Airlines – Lufthansa pioneers in 1956!

- 2009 formulates ab initio to MPL format.
- Integrates Threat and Error Management (TEM)
- Integrates Human Factor (HF) Training.
JHSAT Recommendations

- Training/Instructional Intervention Recommendations (IRs) Level 2. Clear what is required!
- Advanced Maneuver Training – 39%
- Safety Training – 35%
- Basic Training – 29%
- Mission Specific – 15%
- CFI Training – 14%
- Make/Model Transition – 10%
Brief History of US Pilot Training

- Maneuver focused, adapted from IERW, CRM, ADM, SRM, TEM, HF Airmanship only mentioned in special emphasis in PTS. European skill test guidance very similar.
- 1943: US Military Rotary Wing Training
- 1965: FAA publishes AC 61-13 (HFH 2012)
- 1970s: Vietnam War
- 1990s: Civilian Market for Rotary Training
- Addition of low cost aircraft grew this market
- No real simulation!
- Now TAA? Accident reduction? HF Training?
- Ab Initio Pro Pilot Course?
The Pro Pilot Course

What does this look like?
Aptitude Testing and Selection
Private License – including use of AATD synthetic devices for procedures, emergencies, pre solo stage checks.
Integrated (alternating) ground and flight training to include, CRM, SRM, TEM, ADM, HF, TAA training.

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<td><strong>INTEGRATED ALTERNATING GROUND &amp; FLY</strong></td>
<td>+CRM +SRM +ADM +HF +TAA TX</td>
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Immerse in a safety culture mentality from the very first day.

Train SMS from day One!
Instrument Rating – increased use of FTDs.

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SMS TRAINING
Commercial Training–use FTDs to introduce SBT and develop ADM.

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[Image: United States Helicopter Safety Team logo]

[Image: Commercial Training slide with course options]
CERTIFIED FLIGHT INSTRUCTOR

SMS TRAINING

Selection

Private +AATD

Integrated Alternating Ground & Fly
+CRM
+SRM
+ADM
+HF
+TAA TX

IR

CPL(H) +SBT +ADM

CFI
CERTIFIED INSTRUMENT FLIGHT INSTRUCTOR (CFII)

SMS TRAINING

| SELECTION | PRIVATE +AATD | INTEGRATED ALTERNATING GROUND & FLY +CRM +SRM +ADM +HF +TAA TX | IR | CPL(H) +SBT +ADM | CFI | CFII |

2017 HAI HELI-EXPO

By Helicopter Association International
# THE SUPER HERO HELICOPTER PROFESSIONAL PILOT COURSE

## SMS TRAINING

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The Training Device – Helicopter and FTD?

• What does this look like?
• Training Helicopter characteristics:
  – Forgiving.
  – No design specific features.
  – Supports primacy!
• Synthetic Devices:
  – Realistic.
  – Designed for purpose – generic is OK to teach generic skills.
  – Higher fidelity for IR and Commercial SBT/ADM Training.
Example of Airmanship Education Research Initiative (AERI) Study – Dr Bill Rhodes PhD.

- DoD, DARPA, USAF Academy.
- 108 participants (Pvt-ATP)
- 2 Scenarios (VFR into IMC, Fuel Leak)
- 2 FTDs, 2 Groups.
- FAA ADM & Trustworthy Pilot on-line courses in between.
- Pilots with good ADM skills performed well in both scenarios.
- Pilots who made ADM errors in first scenario were significantly reduced in second scenario and they learned from their mistakes.
Pipeline into the Industry

- What happens after training?
- CFI/CFII not always necessary.
- Conversion to operational aircraft? Twin engines? US Army and UK Military now training ab initio in twins!
- SIC positions? Are they available? Industry and insurance carriers needs to participate. SMS!
Conclusion

How do we grow new licensed professional helicopter pilots?

• Establish Training Centers of Excellence.
• Build true ab initio course immersed in a safety culture from Day One.
• Incorporate simulator training early in the pipeline
• Consider Competency and Evidence Based Training
• Use an integrated and SBT approach to train in HF, TEM, CRM, SRM and ADM.

SIC progression with industry and insurers participation for low hour SICs.
Lastly

USHST Goal is to Reduce Fatal Accidents by 20% by 2020

But its Vision is Zero Accidents

Can we achieve zero accidents?
• 41,598
  • Rotorcraft Pilots in the US (Feb 16)

• 116
  • Rotorcraft Accidents in the US in FY16
    (Oct 15 - Sep 16)

• 41,482
  • Zero Accident rotorcraft pilots in US in FY16
Zero Accidents

Believe it....

To Achieve it.
Questions and Discussion