Attitudes Toward the Practical Incorporation of Scenario Based Training (SBT) into a Commercial Pilot Training Syllabus: A Preliminary Study

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Background

As aviation moves into its second century, aircraft accidents still occur, though at a very low rate. With that said, the rate of pilot-related accidents in General Aviation (GA) has not decreased when compared against the rate of mechanical-related accidents in GA. According to the 2010 Nall Report, the number of GA aircraft accidents that were pilot-related made up for 73.9% (857 accidents), mechanical-related accidents made up for 15.0% (174 accidents) and other unknown causes made up for 11.1% (129 accidents) of all accidents that year (Kenny, 2011). According to Kenny (2011), "Most pilot-related accidents reflect specific failures of flight planning or decision-making or the characteristic hazards of high-risk phases of flight." As pilot-related accident rates continue to be higher than mechanical-related accidents, exploration and experimentation is being conducted to look for new ways to address this issue.

Pilot vs. Mechanical Related Accidents in General Aviation

Pilot Related Accidents   **Mechanical Related Accidents**

ALL ACCIDENTS
FATAL ACCIDENTS
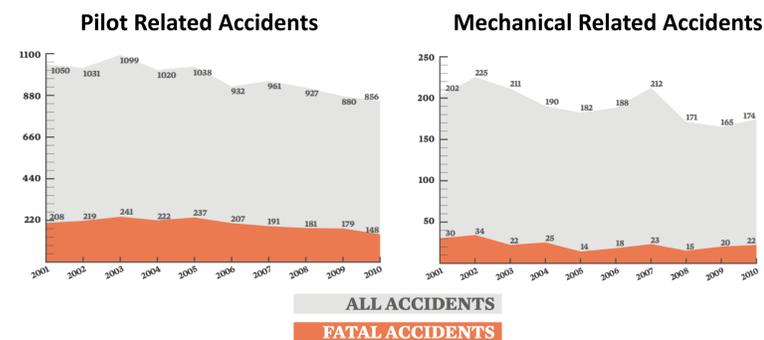
Data from the 2010 Joseph T. Nall Report shows General Aviation accidents from 2001-2010 comparing pilot induced accidents and mechanical induced accidents.

One Method to Address Pilot-Related Accident Rates is Scenario Based Training
- Scenario Based Training is a training system that is structured to use real-world scenarios to meet flight training standards in an operational environment

Effectiveness of Scenario Based Training
- Studies have been conducted which show that students trained using Scenario Based Training (SBT) outperformed students trained with traditional Maneuver Based Training (MBT)
  - *Middle Tennessee State University (MTSU):* Students in the SBT program completed training in 45 less hours than MBT students
  - *University of North Dakota (UND):* SBT students demonstrated higher performance on stage checks and Aeronautical Decision Making (ADM)
  - *The Federal Aviation Administration (FAA):* The FITS training program creates scenario-based, learner-focused training materials that encourage practical application of knowledge and skills

The Underutilization of Scenario Based Training
- The current FAA Practical Test Standards (PTS) is maneuver based
  - In an effort to promote SBT curriculum, the FAA is working on revising the current PTS to incorporate more scenarios and pilot decision-making
- FAA handbooks such as the Aviation Instructors Handbook, Pilot's Handbook of Aeronautical Knowledge and The Airplane Flying Handbook encourage the use of SBT but offer very little guidance on how to implement SBT
- After reviewing several 14 CFR Part 61 and Part 141 Commercial Pilot Airplane Training syllabi, it is evident that MBT is still the more prevalent method of instructing

Attitudes Toward Scenario Based Training
- The reason SBT is underutilized may be because of the attitudes, lack of knowledge and misconceptions of flight instructors and students towards SBT

Methods

Current attitudes towards the addition of Scenario Based Training into a typical Commercial Pilot Airplane Training Syllabus will be examined. Attitudes of past, current and future commercial pilot applicants such as ERAU flight instructors, faculty and students will be evaluated through the use of a qualitative, 12 question survey. Below is an example of the survey.

Sample Survey (Pending IRB Approval)

1. What is your Institutional Affiliation?
   ○ ERAU
   ○ Other
2. What best describes you? (Select all that apply).
   ○ Faculty   ○ Student
   ○ Flight Instructor   ○ Other _____

Please fill in the circle which best describes your answer to the statement.

1. I understand the definition of Scenario Based Training (SBT).

   Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree   Don't Know/ N/A

2. Scenario Based Training (SBT) has been effectively integrated into commercial pilot certification training by flight schools and flight instructors.

   Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree   Don't Know/ N/A

3. I have experienced Scenario Based Training (SBT) in commercial pilot training course.

   Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree   Don't Know/ N/A

4. I believe Scenario Based Training (SBT) is important to include into a commercial pilot training course.

   Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree   Don't Know/ N/A

5. Scenario Based Training (SBT) methods should be used for both instruction and evaluation in a commercial pilot training course.

   Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree   Don't Know/ N/A

6. Flight Instructors should increase Scenario Based Training (SBT) in commercial pilot training courses.

   Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree   Don't Know/ N/A

7. Scenario Based Training (SBT) should be incorporated in all phases of flight training such as flight lessons, ground lessons, and simulator lessons.

   Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree   Don't Know/ N/A

8. Guidance for instructors is adequate for implementation of Scenario Based Training (SBT).

   Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree   Don't Know/ N/A

9. The FAA should require use of Scenario Based Training (SBT) in commercial pilot courses.

   Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree   Don't Know/ N/A

10. Scenario Based Training (SBT) decreases "stick and rudder" skills.

   Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree   Don't Know/ N/A

Future Directions

- Examine preliminary survey results for the purpose of refining questions and more specific demographic questions to increase the range of results
- Move the study from investigating attitudes towards incorporating Scenario Based Training into a Commercial Pilot Training Syllabus into investigating attitudes towards incorporating Scenario Based Training into flight training in general
- Further exploration into utilization of Scenario Based Training in flight training

References

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