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 16.0% (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

<table>
<thead>
<tr>
<th>Pilot Related Accidents</th>
<th>Mechanical Related Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL ACCIDENTS</td>
<td>NON-ACCIDENTS</td>
</tr>
<tr>
<td>Fatal Accidents</td>
<td>Nonfatals</td>
</tr>
</tbody>
</table>

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 Aircraft 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 hometown? [please indicate context]
   - [ ] Offshore
   - [ ] Other
2. Why did become a pilot? [please indicate context]
   - [ ] Pilot
   - [ ] Student
   - [ ] Flight instructor
   - [ ] Other
3. Please fill in the circle which best describes your survey response.
   - [ ] Strongly Agree
   - [ ] Agree
   - [ ] Disagree
   - [ ] Strongly Disagree
4. Scenario Based Training (SBT) has been defined as a training system that is structured to use real-world scenarios to meet flight training standards in an operational environment.
   - [ ] Strongly Agree
   - [ ] Agree
   - [ ] Disagree
   - [ ] Strongly Disagree
5. Scenario-Based Training (SBT) was more effective than traditional maneuver-based training in my training.
   - [ ] Strongly Agree
   - [ ] Agree
   - [ ] Disagree
   - [ ] Strongly Disagree
6. SBT has enhanced my understanding of the hazards of flight.
   - [ ] Strongly Agree
   - [ ] Agree
   - [ ] Disagree
   - [ ] Strongly Disagree
7. SBT has prepared me for situations that I may encounter in the future.
   - [ ] Strongly Agree
   - [ ] Agree
   - [ ] Disagree
   - [ ] Strongly Disagree
8. I believe SBT will improve my decision-making during flight.
   - [ ] Strongly Agree
   - [ ] Agree
   - [ ] Disagree
   - [ ] Strongly Disagree
9. SBT has improved my awareness of the hazards of flight.
   - [ ] Strongly Agree
   - [ ] Agree
   - [ ] Disagree
   - [ ] Strongly Disagree
10. SBT has better prepared me for situations encountered in my future.
    - [ ] Strongly Agree
    - [ ] Agree
    - [ ] Disagree
    - [ ] Strongly Disagree
11. SBT has better prepared me for situations encountered in my future.
    - [ ] Strongly Agree
    - [ ] Agree
    - [ ] Disagree
    - [ ] Strongly Disagree
12. SBT has better prepared me for situations encountered in my future.
    - [ ] Strongly Agree
    - [ ] Agree
    - [ ] Disagree
    - [ ] Strongly Disagree

References


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

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